AV LINUX 6.0.1 “DOZER”

USER MANUAL

A Guide to Get Acquainted with AV Linux

Prepared by Glen MacArthur, March 12/2013

Legal Disclaimer:

Debian/GNU Linux comes with no guarantee so neither does AV Linux. I accept no responsibility for any hardware/software malfunctions or data loss resulting from it's use. It is important to note that the AV Linux ISO contains software that is non-free and is distributed under a special licensing arrangement with the original developers, re-distributing the AV Linux ISO with the non-free content included is a violation of these licenses. AV Linux also contains Multimedia Codecs that may be under patent in certain countries, it is the users responsibility to know the law as it applies to their own respective country before downloading or installing.

TABLE OF CONTENTS:

- **Page 3. - PREFACE – NEW TO LINUX?**
- **Page 4. - THE AV LINUX STORY**
- **Page 5. - CREDITS & CONTACT**
- **Page 6. - THE CONCEPT OF AV LINUX**
- **Page 7. - RUNNING AV LINUX LIVE**
- **Page 10. - AV LINUX BASIC BOOTING BIBLE**
- **Page 11. - INSTALLING AV LINUX**
- **Page 12. - GETTING AROUND IN AV LINUX**
- **Page 22. - SliM LOGIN MANAGER**
- **Page 23. - MOUSE CURSOR THEMES**
- **Page 24. - PERFORMANCE SETTINGS**
- **Page 25. - PROPRIETARY VIDEO DRIVERS IN AV LINUX**
- **Page 29. - MONITOR AND DISPLAY SETTINGS**
- **Page 31. - COMPIZ WINDOW MANAGER**
- **Page 32. - AV LINUX KERNELS**
- **Page 33. - KERNEL CHEATCODES**
- **Page 34. - AV LINUX SOFTWARE**
- **Page 36. - INSTALLING SOFTWARE IN AV LINUX**
- **Page 39. - WHERE TO FIND UPDATED PACKAGES**
- **Page 40. - NETWORKING WITH AV LINUX**
- **Page 44. - PRINTING WITH AV LINUX**
- **Page 45. - USING JACK**
- **Page 47. - MANAGING MIDI IN AV LINUX**
- **Page 48. - USING THE ALOOP DAEMON**
- **Page 49. - SUPPORTED PRO HARDWARE IN AV LINUX**
- **Page 58. - M-AUDIO 1010LT PCM_MULTI WITH AV LINUX**
- **Page 60. - DEBIAN REFERENCE**
- **Page 63. - HANDY TERMINAL COMMANDS**
- **Page 64. - THANKS FOR SUPPORTING AV LINUX**

PREFACE – NEW TO LINUX ?

Realistic Expectations of what AV Linux Can Offer:

AV Linux is an ISO Image created with Debian/GNU Linux. Despite it's critics Linux continues to grow it's user base year after year and has seen great strides in both the quality and number of Software Applications. There are many positive attributes to Linux and 'FLOSS' (Free Libre Open Source Software) and the grassroots community-based development model is completely unique when compared to the Apple and Windows corporate paradigms. To be blunt the notion that Linux of any kind is either better or worse than any other computer Operating System is to miss the point somewhat and serves to set the user up for unrealistic expectations and encourages pointless comparisons that fuel endless and futile debates. An Operating System that allows you to freely create in a streamlined and productive workflow is an individual ideal to be pursued and there is no question that this is truly an attainable goal on all three major platforms.

Some Things to Keep in Mind When Considering Linux as an OS Platform:

- Linux blurs the line somewhat between the end-user and the developer and therefore doesn't shy away from featuring it's basic operational face known as the Console or Terminal. Certainly efforts over the past several years have molded Desktop Linux into as user-friendly a platform as any but to fully enjoy all Linux has to offer it is somewhat incumbent on the user to have at least a casual interest in what happens on both sides of the computer screen.

- Although Linux at it's core is a curious symbiotic mixture of Community and Corporate interests for the most part the Linux Multimedia applications within AV Linux are developed by volunteer developers from all over the world. Many of these generous and talented people are doing their work out of the purest motive...the love of doing it. Because the motivation is not primarily financial end-users sometimes have a problem differentiating their personal expectations from those that would be usual when looking at things from a 'paying customer' perspective. FLOSS developers are giving the end user something much greater than software, they are sharing their most vital asset...time. It is very easy to take this fact for granted and certainly someone who is showing such generosity should be equally paid back with patience and respect. 'Free' doesn't indicate an absence of financial support, many projects are in dire need of financial support to encourage and enable their developers to continue. 'Free' should be seen as 'politically free' and the user's choice to decide what projects they wish to support and how they wish to do it.

- The primary method of hardware support on the Linux platform is through that magical bundle of code known as the Kernel. It is truly amazing the sheer total number of various pieces of computer hardware that are natively supported without ANY outside or 3rd party drivers. Having said that it is certainly not reasonable to expect that Linux will 100% support ALL available hardware or even have an equal degree of stability with all hardware that is supported. The ground rules for building an effective Audio/Video Workstation with Linux are really no different than on any other platform. All PC's are not created equal and certainly not all are suited to professional level multimedia content creation. If you are serious about optimizing your success with AV Linux then some care should be taken to select well supported Audio/Video hardware for Linux.

****These guidelines are informed by a mixture of opinion and experience and are offered as such.**

THE AV LINUX STORY:

A Brief (Well OK, Maybe Not So Brief) History:

AV Linux came into being in 2007 out of a simple desire to share a working Linux audio desktop with some like-minded users on the Ardour forum. At that time two of the dominant multimedia-centered Linux Distributions (Jacklab, 64 Studio) were starting to fade away from active development. I had customized a version of Ubuntu Studio 7.10 with Tony Brijeski's Remastersys and self-compiled upstream packages that worked quite well. After the next Ubuntu release (8.04LTS) I quickly learned that in-between point releases of Ubuntu like the 7.10 I was using didn't age very well after their 6 months were up so I looked to Debian/GNU Linux for a longer running release model. AV Linux 2.0 was the first release on Debian and was also when I came to know and appreciate the new light Desktop Environment known as LXDE. As a small independent project AV Linux did not receive much notice or publicity from the usual Linux media blogs and online journals but a small but growing word-of-mouth following encouraged me to keep at as I learned more about packaging and customizing. After AV Linux 3.0 was released I received an email from Michael Bohle one of the former developers of JackLab, he was doing freelance journalism and had a gig doing a Linux Audio article with the German 'BEAT' magazine and had stumbled across AV Linux. He asked if I'd be interested in putting together a custom ISO for a series of workshops being done on Linux audio coinciding with the BEAT magazine article. I very hurriedly assembled an updated ISO with some added commercial Linux apps like Renoise, EnergyXT and linuxDSP plugins and called it 'AV Linux 3.1 BEAT Edition', after that I had a concept I liked...mixing both open-source and commercial Audio and Video apps with a light Desktop Environment that kept older computers viable.

The BEAT Edition attracted some more attention and during the development of AV Linux 4.0 I noticed an ever-increasing influx of new users on the AV Linux forum and numerous blog articles about AV Linux. This greatly increased the amount of time required to maintain and support both all of the rapid new developments in Linux multimedia and the growing user base needing technical support. I still had much to learn about proper packaging and distributing a Linux ISO but thankfully the growing community of AV Linux users also came with a few able folks wanting to help. As time went on I was able to strike up some valuable relationships with various upstream developers who were interested in using the AV Linux ISO as an avenue to demonstrate their applications and various Linux projects around the web (Openshot, Guitarix, LiVES, Cinelerra, Renoise, Transcribe, linuxDSP and Mixbus) featured AV Linux as their LiveDVD of choice which included both open-source and commercial applications. The AV Linux 5.0 series hit some milestones and garnered some welcome recognition when it appeared on Distrowatch without even being officially submitted and was reviewed by both ZDnet and Linux Journal. The Linux Journal article was a real honor as it was written by Dave Phillips who had been an inspiration and great source of information when I was a Linux newb.

The sum of the experience and lessons learned over the previous 5 versions of AV Linux have culminated in this latest release of AV Linux 6.0.1. It is my sincere hope that users will find this to be the most complete, reliable and useful version so far. My sincere thanks to all whose paths I've crossed in one way or another during this journey. For a middle-aged Canadian farmboy with no formal computer training this has been a rewarding and enjoyable experience.

With Warm Regards and Sincere Thanks! - Glen MacArthur

CREDITS & CONTACT:

Thanks to:

My wonderful wife and kids for their infinite patience and encouragement.

Debian/GNU Linux, Debian pkg-multimedia team, LXDE, Tony Brijeski (Remastersys), RevLinux (geekconnection.org), Trulan Martin (Firewire guru, AV Linux Kernel Dev.), Allen Tate (Torrent and tracker), Mike Start (linuxDSP), damentz (Liquorix Kernels), Dan MacDonald (Complaints Dept.) Michael Bohle (BEAT Magazine), Christian Marillat (Deb-Multimedia.org) Paul Davis and development team (Ardour), Ben Loftis, Todd Naugle (Harrison Mixbus), Rui Nuno Capela (Qjackctl, Qsampler, Qsynth, Qtractor), Matt Weatherford (WinFF), Jonathan Thomas, Andy Finch (Openshot), Hermann Meyer, James Warden, Andreas Degert (Guitarix), Gabriel Finch (LiVES), Dan Dennedy (MLT), i2productions (Linux in Review), Dave Phillips (Linux Journal), falkTX (KXStudio), Grooveschmied (German Translation), Edward Diehl (ISO Testing)

Applications using the AV Linux ISO Image as a Demo LiveDVD:

Cinelerra - http://cinelerra.org/getting_cinelerra.php
Openshot Video Editor - http://www.openshotvideo.com/2008/04/download.html
LiVES Video Editor - http://lives.sourceforge.net/index.php?do=downloads
Guitarix - http://guitarix.sourceforge.net/

Commercial Software Demo Permissions Provided by:

Mike Start - linuxDSP Audio Plugins
Julien Pommier - Pianoteq
Colin Barry - Loomer Plugins
Andy Robinson – Transcribe!
Edouard Muller - Renoise

Graphic Credits:

Default Theme 'AVLinux-Blue' modded by me from 'Classic Ambiance Blue' by Ravenfinity
Default Openbox Theme 'Imagine-Blue' modded by me from 'Imagine-Ambiance' by ishom jauhari
Default Wallpaper 'AV-601-Blue-Metal' by GMaq
Icon Theme - Faenza Icons by tiheum including Faenza-Fresh by funnyguy
Optional Icons – Instruments by starcycle
Cursor Themes – Pulse Glass by Kuduk, Picks by starcycle
Manual Fonts – This Manual uses 'Ubuntu' and 'Ubuntu Mono' fonts

AV Linux Resources:

Manual – http://www.bandshed.net/pdf/AV601Manual.pdf
Website – http://www.bandshed.net/AVLinux.html
Forum - http://geekconnection.org/remastersys/forums/index.php#7
Email – info@bandshed.net *DO NOT USE EMAIL FOR TECH-SUPPORT!

THE CONCEPT OF AV LINUX

Differences Compared To Other Linux Distributions:

On the surface AV Linux looks very much like any other Desktop Linux system however the way it is presented and maintained differs greatly from most other common Distributions. The primary mandate of AV Linux is simple..."Install, Create". This means AV Linux is intended to be first and foremost a complete and self-contained ISO Disk Image for it's intended task of providing users with a pre-tested and pre-configured Audio/Video workstation.

For a system that needs to be reliable especially in the context of professional multimedia content creation some common-sense measures have been taken to help ensure that dependability comes first. Two common adages in the computer world are 'never touch a working system' and 'if it ain't broke don't fix it'. AV Linux strives to live up to these ideals by avoiding having an update manager push updates onto the user's system. Any updates or changes to software on AV Linux are completely at the user's discretion. Updates to the core base of AV Linux (Debian Squeeze) are handled through the included 'Synaptic Package Manager' and updates and bug fixes to the specific custom Audio and Video software packages are made available in a special custom packages FTP folder (further explained in the 'Installing Software In AV Linux' section of this manual).

The focus of development in AV Linux is always on the complete Operating System ISO Disk Image, between ISO releases updated, improved or bug fixed packages will be made available but not in a usual apt repository where they would show up as updates in the Package Management system, this is to ensure that users are not influenced into making unneeded or ill-informed changes to their system. For this reason AV Linux should not be considered as a 'Distro' it is more accurately a ISO-based OS with supplemental packaging, that may sound similar to other Linux Operating Systems in a general sense but in daily usage it is a very different way of doing things.

Many conscious choices have been made in the creation of AV Linux to enhance it's efficiency, make it adaptable to keeping older computers productive and blending the best attributes of available applications for the Desktop Environment and User Interface. Because of this high degree of customization and integration AV Linux is not intended to be easily adaptable to using alternative Desktop Environments. AV Linux is not a generic Linux OS that allows for unlimited choices, it is a highly specialized OS that willingly sacrifices some freedom of choice for rock-solid dependability and predictable performance.

There is no question that Linux users can enjoy creating multimedia on more conventional Desktop Linux OS's, it is not intended to suggest that this is an inferior way of doing things. AV Linux employs a more cautious methodology in the hopes that it will provide a positive and reliable experience to users, especially those who are new to Linux as a platform and perhaps more importantly provide the dependability to maximize the potential of acceptance into professional and commercial content creation opportunities.

RUNNING AV LINUX “LIVE”:

AV Linux can be used “Live” in 2 different ways with no changes to the host machine operating it, by running it from a LiveDVD or using a Bootable USB Key.

LiveDVD:

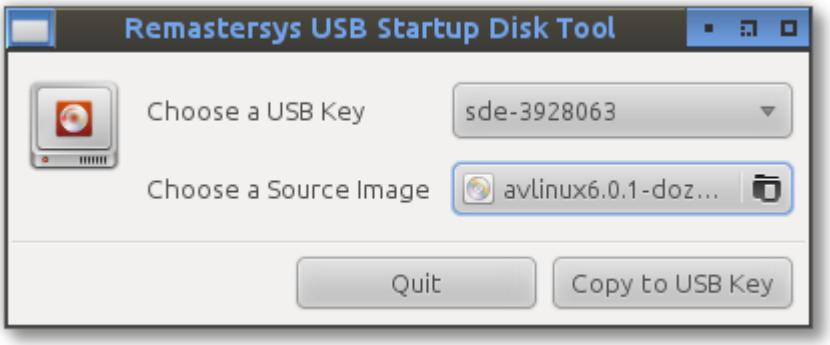
- Download the AV Linux 6.0.1 ISO file from http://www.bandshed.net/AVLinux.html
- Burn the ISO file to a DVD-R or RW using your existing Burning Software
- Set your Computer BIOS to Boot from your DVD Drive if it doesn't by default
- Reboot into the AV Linux LiveDVD

METHOD 1 - Bootable USB Key:

Requirements:

An existing AV Linux 5.0 or greater install OR a running AV Linux 6.0.1 LiveDVD session
PC Capable of booting from USB Key with block sizes greater than 1024mb
At least 4GB USB Key
avlinux6.0-lxde-i386-en.iso from here: http://www.bandshed.net/AVLinux.html

Bootable USB Keys can be created with the Remastersys USB Startup Disk Tool found in the AV Linux Control Panel. This unique tool creates an 'ISOhybrid' USB Key. Please note that this tool overwrites any existing USB FAT32 or other filesystem and writes the actual ISOhybrid image itself to the key. This means the Key will no longer be usable for Data storage, however you can use the USB Key Tool to overwrite the ISOhybrid image as many times as you want. This USB Key Tool will only work with ISOhybrid images. The AV Linux ISO comes ready to use as a formatted as an ISOhybrid image.



METHOD 2 - Unetbootin Method:

Requirements:

PC Capable of booting from USB Key
At least 4GB USB Key
Latest AV Linux ISO image from here: http://www.bandshed.net/AVLinux.html

This guide is written assuming you are using an existing AV Linux install, however any current distro with GParted and Unetbootin will work. This operation will utilize the entire USB Key so use a key you don't want to share data on other computers with and remove any important data from the key. I would also suggest you use a clean key without any U3 or other proprietary launching software on it, most manufacturers provide utilities to remove this.

STEP 1.
Insert your USB Key into the USB Port but don't mount it in the File Manager. From the menu go to 'Preferences'-->GParted and launch GParted.

STEP 2.
Using the drop down dialog in the upper right corner of GParted select your USB Key. MAKE SURE YOU KNOW WHICH DRIVE YOUR USB KEY IS!!

STEP 3. (DO WITH CAUTION)
Select any existing Partitions on the Key, Right Click on them and delete them until the Key is completely unallocated space.

STEP 4.
Create a new FAT32 partition on the USB Key at least 3.0 Gigabytes (3072 mb). In the remaining unpartitioned space create an ext2 or ext3 partition and in the 'label' field enter 'live-rw'.

STEP 5.
Click on the checkmark icon at the top of GParted and apply the partitions you have created to the key.

STEP 6.
Once GParted has finished creating your new partitions right click on the FAT32 Partition and select 'Manage Flags' and from the list select 'boot'. When you close the Flags dialog Gparted should quickly rescan and display the boot flag on your FAT32 Partition. Close Gparted.

STEP 7.
Remove your USB Key and then plug it back in. Then open the File Manager...you should see 2 partitions available to mount relating to your USB Key, you can mount them both but you only need to mount the FAT32 one. Hint... it is the one not called 'live-rw'.

STEP 8.
From the menu open 'System Tools'--->Unetbootin. Select the Diskimage option and navigate to where you have downloaded or placed the avlinux6-lxde-i386-en.iso file and Click OK. Unetbootin will take several minutes to copy the image and bootloader to your Key.

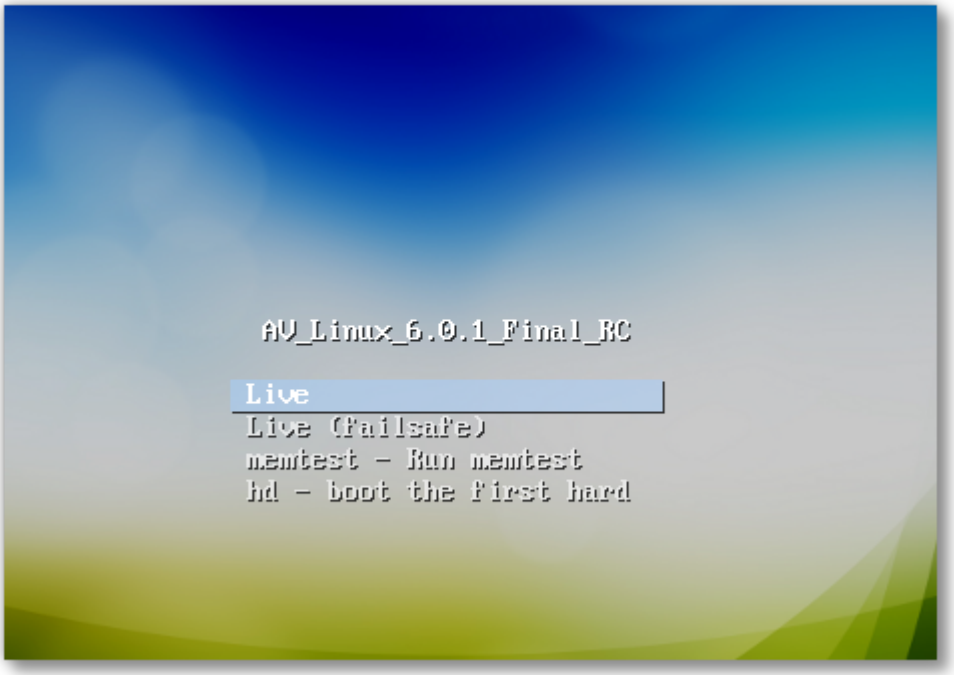
Adding Persistence to the Key:

If you simply want AV Linux on a USB Key without persistent storage you can stop here. This will give you the partition AV Linux runs from and a small additional partition to store files on while you are running it. For persistence there are a few more steps and a few things to consider:

1. Persistence will dramatically slow bootup time.
2. Persistence causes the system response to be a little slower than a non-persistent Key
3. Installing AV Linux from a persistent Key is NOT advised.
4. System shutdown may display several harmless errors, do not remove your key when prompted until it stops flashing.

STEP 9.
Mount the FAT 32 Partition of your Key (if it isn't already) in PCManFM and navigate to the 'syslinux.cfg' file. Right click on it and open it in gedit and modify it's text in line 9 like the example below, once done save the edited syslinux.cfg file and you are ready to boot into your new Key. Enjoy!

```
append initrd=/ubninit boot=live config   threadirqs quiet splash persistent --
```



AV LINUX BASIC BOOTING BIBLE:

When Booting an AV Linux ISO:

1. Be patient...it can take several seconds to start the boot especially on LiveDVD media.

2. Watch for disk activity, if you see nothing immediately on the monitor but there is disk activity it is still working on the boot.

3. Closely observe the Kernel console text output for red text errors, warnings and even many regular console colored errors are normally harmless. The reason AV Linux doesn't use a pretty bootsplash is so the user can monitor what the Kernel is doing at boot.

4. If the console output completes and the SLiM login window appears wait for it to auto-login which will take several seconds on the LiveDVD and may not appear at all when booting from a Unetbootin USB Key.

5. If the desktop partially loads OR the display resolution is wrong or corrupted it is most likely a Kernel Modesetting/Video Driver issue which is covered in more detail below.

Failure to Boot Can be Caused by Several Issues:

1. A corrupted or broken ISO image on the Project ftp server.
This is extremely unlikely and rare and is easily ruled out by a single successful install by an end-user, AV Linux is pre-tested by a third party before any release is made public to make sure the ftp ISO images are intact and functional.

2. A bad download of the ISO image.
This is not common, but quite possible and can be verified by using the accompanying ISO.md5 file from the ftp download folder. Another simple indication is if the file sizes on both the ftp and the downloaded file match perfectly.

3. A bad burn of the ISO to disk media.
This is usually the most likely cause of boot failure and is generally evident when the disk does nothing at all or freezes after displaying a few lines of console text which may be accompanied by numerous console red error messages. Always burn any compressed filesystem media like ISO images at low burn speeds (i.e. 4X or less) and make sure to use good disk media. If a LiveDVD fails try it on a different computer, this is the number one way to discern if your media is bad or not or whether your computer has a specific hardware issue with the LiveDVD.

4. Incompatible Video Hardware and Kernel Mode Setting (KMS).
This issue is generally evidenced by the Kernel completing it's console output and dying at the login or unsuccessfully trying to load the Desktop and/or displaying the Desktop at a very low or garbled resolution. AV Linux 6.0 can be booted to disable KMS by selecting the 'Failsafe' option from the ISOlinux LiveDVD boot splash screen.

INSTALLING AV LINUX:

WARNING! - The following section involves major system changes like hard drive partitioning etc. There is always a risk of Data loss or corruption when installing a new or different Operating System. ALWAYS back up any important Data before making changes to your existing Hard Drive. If you are completely unfamiliar with the concept of drive partitioning, or terms like "Master Boot Record" it is recommended that you don't attempt to install AV Linux.

Installation Info:

Launch the Remastersys Installer from the desktop by right-clicking on the Desktop Installer Icon. AV Linux uses 'GParted' to perform disk partitioning, you can choose to set up partitions before running the Installer or do it as part of the installation process. The Installer is laid out in a very simple step by step manner, take your time and carefully read the Installer prompts to ensure a successful install. Please also take time to read the rest of this section before installing.

PLEASE NOTE! AV Linux does not use 'sudo' it uses the pure Debian Root Superuser and User method. When installing and setting up AV Linux you will need to have a separate and unique password for your Root Superuser to administrate the system and a regular User password for normal system use.

IMPORTANT! NEW INSTALLER FEATURES

The Remastersys Installer in AV Linux 6.0 has some new features to make installing easier and more convenient than before. Users can now choose ext2, ext3 OR ext4 partitions and GRUB2 is now the default bootloader.

PLEASE NOTE! The 'noformat' your home folder option in the AV Linux Remastersys Installer is still under development and not recommended for use at this time.

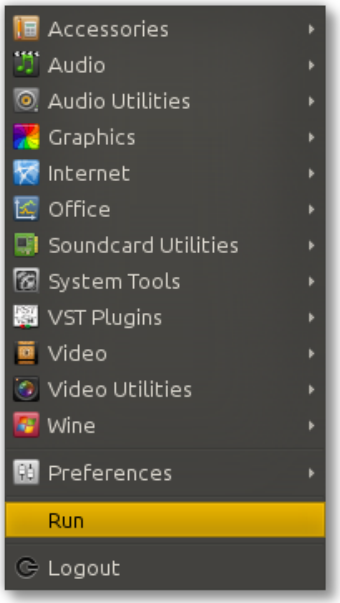
Message Dialogs During Installation:

AV Linux employs a special script to mount all partitions at boot. During the installation process as the new partitions are created the Removable Drive mounting dialog may appear. You can safely hit the 'Cancel' button and close these dialogs as the installation takes place.

GETTING AROUND IN AV LINUX:

About LXDE:

LXDE is a relatively new Desktop Environment with it's 0.5.X release included in AV Linux, it was chosen for it's unique modular mix and match of existing individual D.E. software components. It provides a good balance between resource efficient performance and GUI attractiveness with the ability to utilize different Window Managers and gtk-2.0 themes common to other Desktop Environments like Gnome and XFCE4.



Custom AV Linux Menu:

The AV Linux Custom Menu has been prepared to help users get to the applications they are looking for quickly and differs significantly from the stock LXDE menu. It's simple two-tiered interface doesn't have numerous sub-menus to confuse and obscure where applications can be found.

The Menu contains a number of custom launchers so even applications that normally have a CLI interface only can be easily found and launched from the Menu. Some examples are A2JMIDID, Aloop-Daemon, JACK Capture, JACK Meterbridge, and WineASIO which can be found in the 'Audio Utilities' menu.

Managing Misplaced or Missing Launchers:

Occasionally you may install a program and have it appear in the wrong menu category since the AV Linux menu differs from the stock LXDE one, additionally in rare cases you my install a program with a launcher that doesn't appear in the menu at all. This will usually affect only the separate Audio and Video menus. Fixing this is quite simple, first find the misplaced or missing launcher in /usr/share/applications or /usr/local/share/applications, then right click on the launcher you want to fix and use the 'Scripts' menu in Nautilus to 'Open with gedit as root' and scroll down to the line that says 'Categories=' and delete any text that is following the '=' and replace it with 'AudioEditing' to make the launcher appear in the Audio menu or 'VideoEditing' to make it appear in the Video menu. For the new custom 'Audio Utilities' and 'Video Utilities' menus use 'AudioUtils' and 'VideoUtils' for your Categories.

An Example from a "Floola" Launcher:

```
[Desktop Entry]
Encoding=UTF-8
Version=1.0
Type=Application
Categories=AudioEditing
Terminal=false
Icon=floola
Name=Floola
Exec=/opt/Floola-linux/Floola
Comment=iPod Management Tool and More!
```

Creating Custom Launchers:

If you have installed or compiled a program that does not have a launcher you can easily create one using the launcher creation tools found in the AV Linux Control Panel. You have a choice of creating a launcher for your user only or a system-wide launcher for all users. Read and follow the prompts carefully.

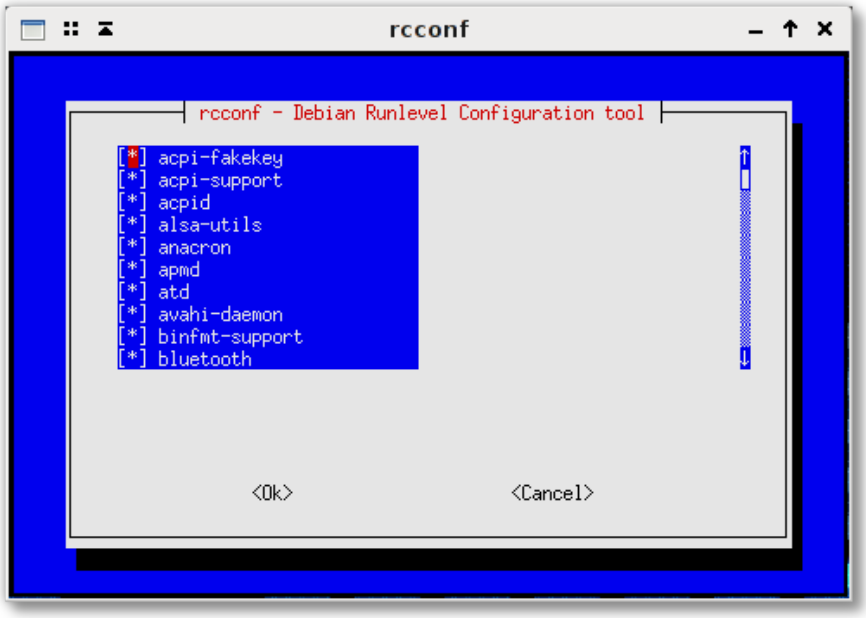
The AV Linux Control Panel:

The AV Linux Control Panel is a simple yad-based launcher-style utility created by Tony Brijeski. The Control Panel is a vital part of AV Linux and addresses many of the features missing from LXDE when compared to more complete Desktop Environments like Gnome or KDE. The Control Panel choices are fairly self-explanatory. To use the X-Kill option to terminate a misbehaving program click on the X-Kill launcher with your mouse and then move your cursor to the window of the application you wish to terminate then hit the Enter key. When the cursor changes into a skull and crossbones click again on the window of the application to terminate it.

AV Linux Control Panel
Double-Click or
Select and Press Enter
to Launch an item
Add a Menu launcher for All Users
Add a Menu Launcher for Your User
Change the System Console Keyboard Settings
Change the System Font Display Settings
Change the System Keyboard Settings
Change your password
Enable or Disable Mounting of All Partitions on Boot
Enable or Disable Running Scripts at Boot
Make an ISO Hybrid bootable USB key of AV Linux
Mount All Partitions Now
Open a Root Terminal
Printer Setup
Set Time and Date
System Information
Task Manager
Task Manager - Root
User Admin Tool
X-Kill

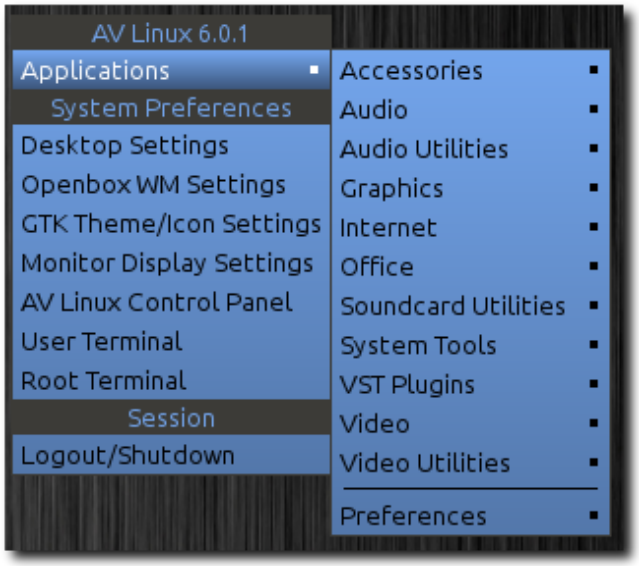
Ncurses Terminal Interface:

dpkg-reconfigure functions like rcconf to enable/disable boot scripts use the ncurses terminal interface. To navigate the options use the arrow keys on your keyboard and to select or deselect an option use your keyboard space bar.



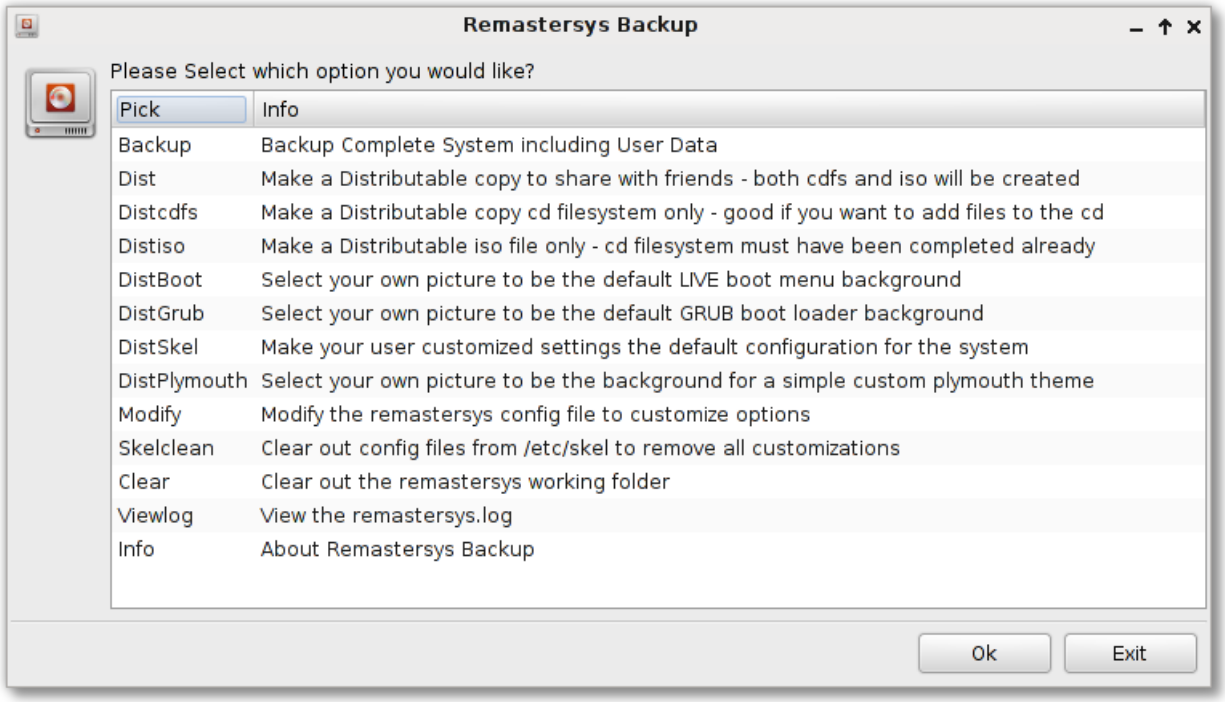
Openbox Mini-Menu – NEW FOR AV LINUX 6.0 !:

A new feature in AV Linux 6.0 is right-clicking on the desktop to access an Openbox Mini-menu with some common system configuration options as well as the same xdg Applications Menu from LXPanel.

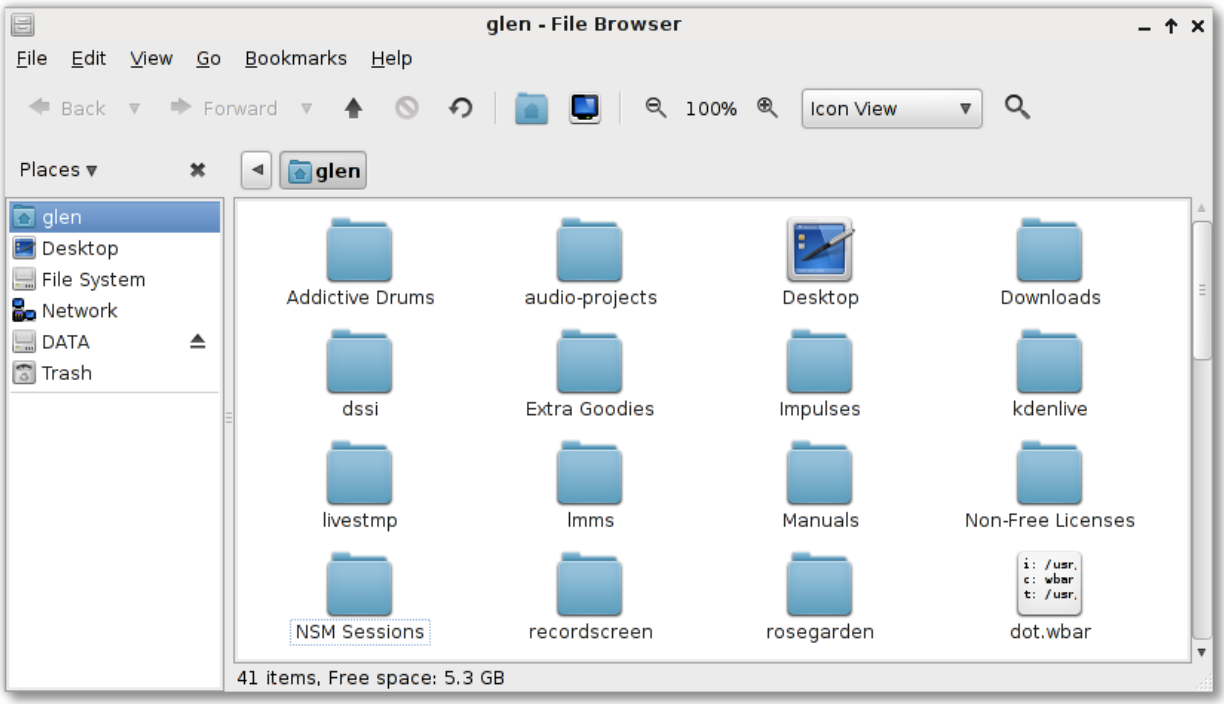


The Remastersys Backup Utility:

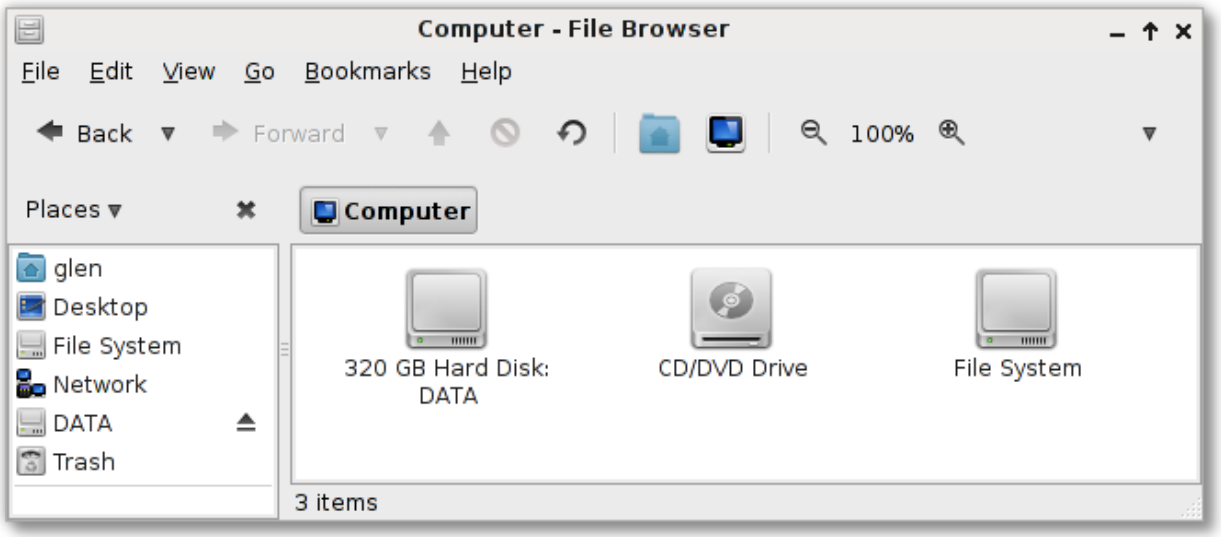
The Remastersys Backup Utility is very easy to use and will create a bootable ISO image of your running system that you can use to reinstall in case of major problems. There is a limit of 4.0Gb for an ISO image so it is not recommended to keep large files or stored data in your User's home. To use it set up your remastersys config file and select either 'Backup' which will back up your User's home as well or 'Dist' mode which will not retain your personal settings and customizations. It is also important to use the 'Clean' utility between uses to ensure a fresh ISO is created. The latest version of the Remastersys GUI included in AV Linux 6.0 has a lot of additional new features to further assist the user customize their own version of AV Linux.


Remastersys Backup
Please Select which option you would like?
Pick
Info
Backup
Backup Complete System including User Data
Dist
Make a Distributable copy to share with friends - both cdfs and iso will be created
Distcdfs
Make a Distributable copy cd filesystem only - good if you want to add files to the cd
Distiso
Make a Distributable iso file only - cd filesystem must have been completed already
DistBoot
Select your own picture to be the default LIVE boot menu background
DistGrub
Select your own picture to be the default GRUB boot loader background
DistSkel
Make your user customized settings the default configuration for the system
DistPlymouth
Select your own picture to be the background for a simple custom plymouth theme
Modify
Modify the remastersys config file to customize options
Skelclean
Clear out config files from /etc/skel to remove all customizations
Clear
Clear out the remastersys working folder
Viewlog
View the remastersys.log
Info
About Remastersys Backup
Ok
Exit

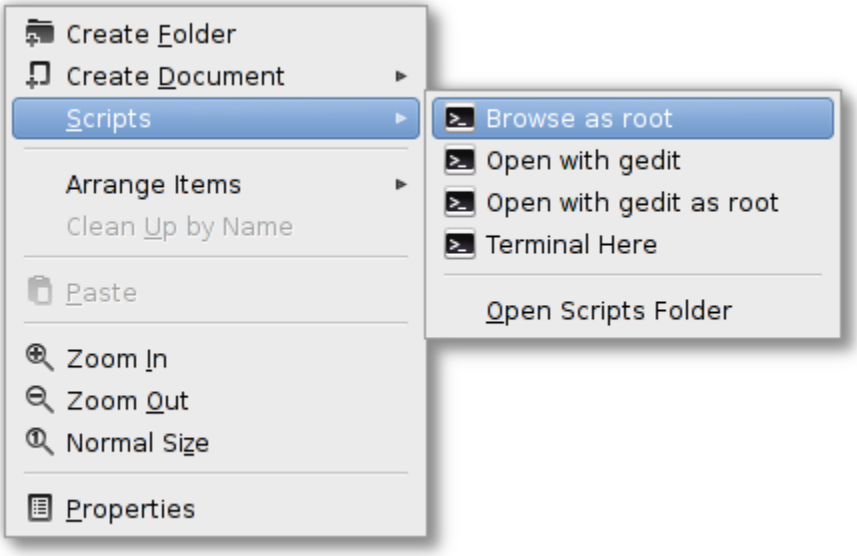
Nautilus File Manager - NEW FOR AV LINUX 6.0 !:



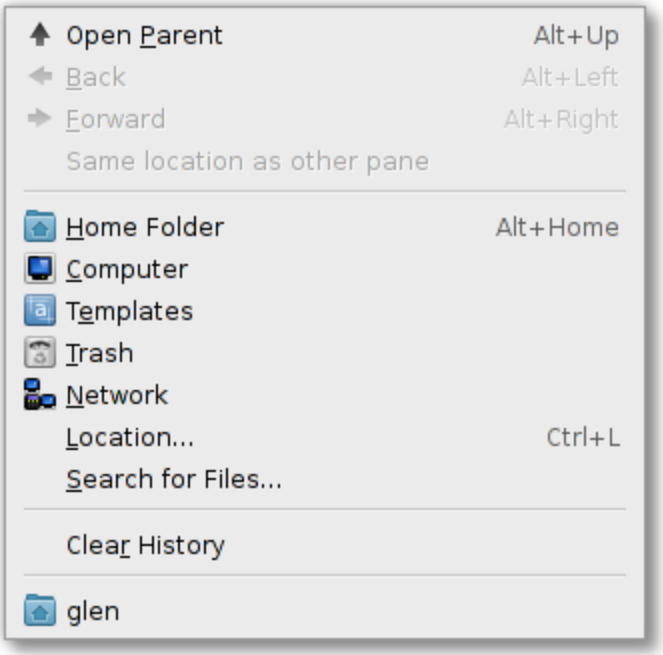
AV Linux 6.0 introduces Nautilus as the default file manager. Nautilus is utilized without having it manage the Desktop in order to keep the usage of system resources to a minimum. It is fully-featured and great for networking as well as loaded with options like Audio and Video thumbnails. Perhaps most interesting is the extensibility of Nautilus provided by it's support of scripts. AV Linux 6.0 provides Nautilus with a pre-installed collection of handy system administration scripts. It is important to note that Nautilus has a fully functional trash function unlike the previous PCManFM file manager used by AV Linux.



Two useful menus in Nautilus are the 'Scripts' Menu (accessed by right-clicking in the file window):



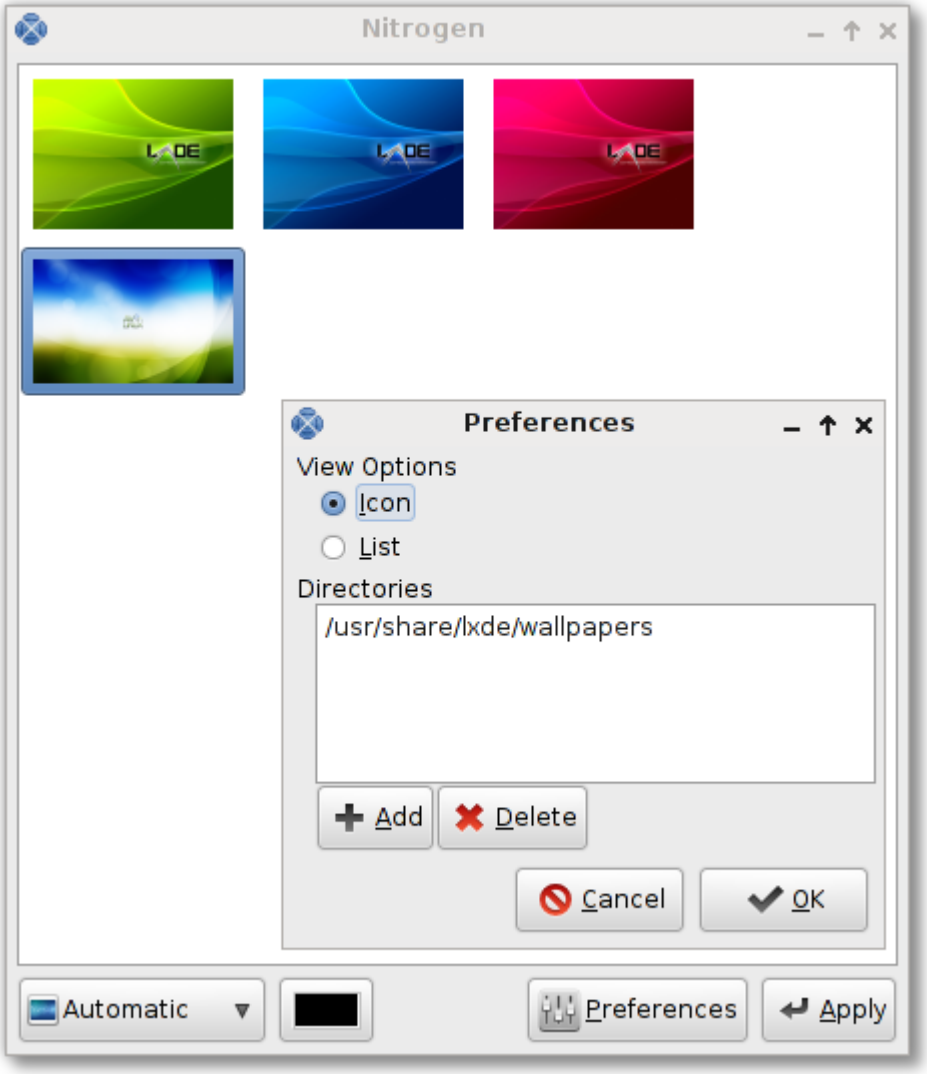
and the 'Go' Menu:



Nautilus Notes:

Nautilus has some handy features that can be handled with keyboard commands, to browse files with an URL bar use 'Ctrl+L', to see hidden files in the directory you are browsing use 'Ctrl+H'. To bypass the Trash folder use 'Shift+Del' to permanently delete the files. It is important to note if you are browsing as Root and delete any files they will be placed in the Root Trash file not the regular users, it is a good practice to always delete files from Root browsing with 'Shift+Del' to bypass Root's Trash folder. There is a long running bug in Nautilus that prevents trash from being deleted by the usual clicking on the Trash icon in the left-hand pane of Nautilus. To manually find and remove Trash files from Root browse the /root folder as Root and navigate to /root/.local/share/Trash and enter the 'files' and 'info' folders and select the files you want to delete and use 'Shift+Del' to permanently remove them from the hard drive.

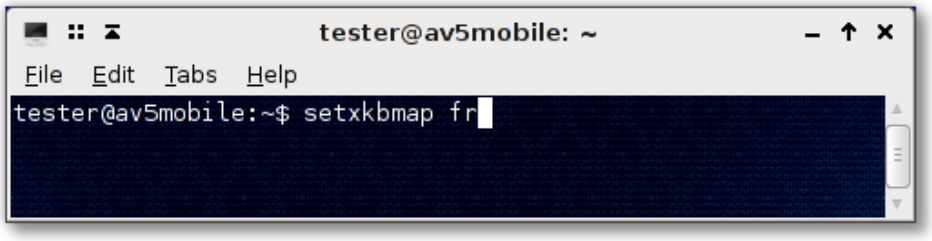
Nitrogen Wallpaper Manager - NEW FOR AV LINUX 6.0 !:



With Nautilus as the file manager set up by default to not handle the Desktop a small and light utility called 'Nitrogen' is now utilized for handling that task. Nitrogen is very light and easy to use and supports utilizing different wallpapers on dual-head display setups. An **important caveat** of using Nitrogen is that it doesn't support displaying the contents of the /home/USER/Desktop on the Desktop itself. This means that anything that would normally be visible on the Desktop can only be seen in the 'Desktop' folder of the user's home folder. This also means that files, launchers etc cannot be dragged and dropped on the Desktop either. Of course as usual launchers are available in the Menu, on the LXPanel and on the Wbar Dock. As an example if a user wanted to copy a registration key for a commercial application like Harrison Mixbus to 'the Desktop' simply copy it to the 'Desktop' folder in your user's home folder.

Changing the Keyboard Layout for Other Languages:

To set the keyboard for a different language during a LiveDVD session open a Terminal and use the 'setxkbmap' command with the accompanying 2 letter code for your language. The screenshot below shows the command for French (setxkbmap fr).



To permanently change the keyboard setting in an AV Linux install use the Keyboard setting utilities found in the 'System Customization' tab of the AV Linux Control Panel. You can also change the System keyboard manually by opening a Root Terminal from the Accessories menu and editing the configuration file in /etc/default/keyboard with this command:

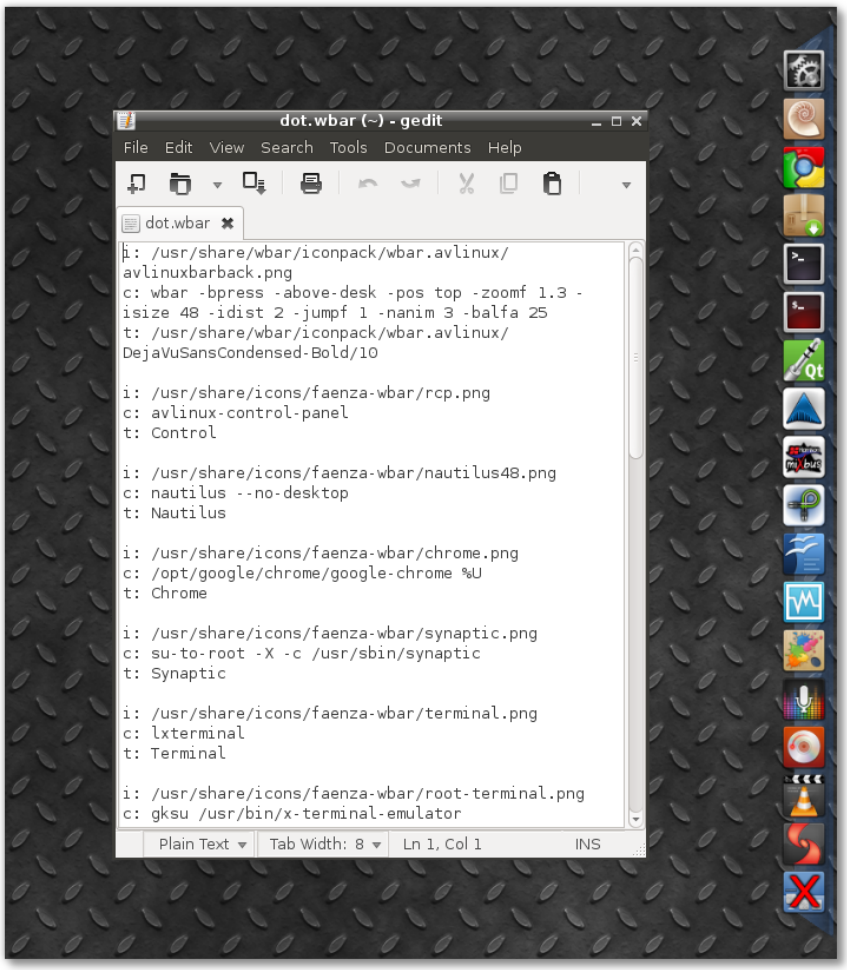
```
gedit /etc/default/keyboard
```

Change the Model and Country codes within the quotes to the correct ones for your Country and save the changes.

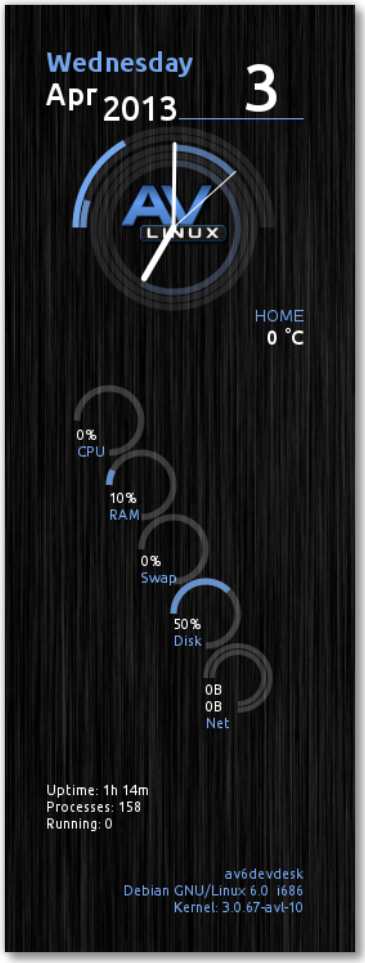
```
XKBMODEL="pc104"
XKBLAYOUT="us"
XKBVARIANT=""
XKBOPTIONS=""
```

Using the Wbar Dock:

AV Linux uses the Wbar Dock for an attractive way to quickly launch apps from the Desktop. Wbar is set up to be launched from the LXPanel so the user can choose to have it on or not after startup, to have it launch automatically at startup simply copy the 'wbar.desktop' file from /usr/share/applications to /home/USERNAME/.config/autostart . The Dock is configured by editing it's 'dot.wbar' config file in your user's home. The config file is very straightforward to edit... “i”=Icon, “c”=launch command and “t”=title. The Wbar Dock can be closed by clicking the last icon with the red 'X' on it. Occasionally when switching between Openbox workspaces the Dock will appear on top of the window of any application you have open, simply click on the window of the running application and the Dock will be correctly placed behind the window. There are a large number of customized icons for common multimedia apps in a special 'faenza-wbar' folder found in /usr/share/icons.



Conky Desktop Statistics:



AV Linux 6.0.1 comes with an optional 'Conky' for a graphical way to display the system stats. Conkys are very light on system resources and use very little RAM. The Conky on AV Linux has been custom designed to reflect the default system theme and can be easily switched on or off by either right-clicking on the Openbox Mini-menu or selecting the Conky launchers in the 'Preferences' menu.

There are numerous 'conkyrc' configuration files widely available on the internet and they are intended to be customized to the preferences of the user. There are no simple graphical tools available to configure Conkys due to the variety of types. If you want to modify the appearance of the Conky in AV Linux you will need to hand-edit two separate text files in your user's home folder. The Conky scripts reside in hidden folders so in order to see them go to your user's home folder and hit 'ctrl+h' on your keyboard to make the hidden files visible. The folders containing the Conky config files are ~/.conky and ~/.lua/scripts/.

Of interest to many users will be changing the four letter code for the Weather temperature indicator. To do this you will need to to determine the letter code for your own location by visiting the National Weather Service website here: **http://weather.noaa.gov**

Once you select your location from the weather service you should see an URL in your browser URL bar something like this:
'http://weather.noaa.gov/weather/current/CYKD.html'

Make note of the four letter code at the end of the URL (ie 'CYKD') and then go to ~/.conky and open the 'conkyrc' file by right-clicking on it and selecting 'Open With → gedit'. Scroll down to line 62 in the conkyrc text file and replace the default 'CYXU' code with the four letter code for your location. Save the file in gedit and the Conky should now reflect the temperature for your location.

SliM LOGIN MANAGER:

Setting SliM For Autologin:

AV Linux 6.0 features a new and much lighter Login Manager...'SLiM'. Although not as fully featured and familiar as GDM, SliM has a very light system footprint and is still quite configurable by editing it's configuration file in /etc/slim.conf. The example below will cover the most popular configuration request...autologin.

First open a Root Terminal from the 'Accessories' Menu and enter:

```
gedit /etc/slim.conf
```

To enable autologin two separate variables must be changed in slim.conf. Scroll down the file to find the following line:

```
# default_user
```

To set yourself as the default user remove the '#' comment from the beginning of the line and then add your username, USERNAME is used here as an example:

```
default_user USERNAME
```

If we leave the file like this then on next login it will automatically enter your username but still require your password, to have autologin work fully you need to edit the autologin line:

```
# auto_login no
```

Once again remove the '#' comment and change the 'no' to a 'yes' like this:

```
auto_login yes
```

When you have completed editing the slim.conf file click 'Save' in the Gedit Text Editor and autologin should be active on your next login.

Setting SliM Default Session Using Other Desktop Environments:

Open a Root Terminal from the 'Accessories' Menu and enter:

```
gedit /etc/slim.conf
```

Scroll down the file to find the following line:

```
login_cmd       exec /bin/bash -login /etc/X11/Xsession %session
```

Change '%session' to the start command of your desired other default Desktop Environment.

Command Examples For Some Other Common Light Desktops:

default,startxfce4,openbox,ion3,icewm,wmaker,blackbox,awesome

MOUSE CURSOR THEMES:

Changing the Mouse Cursor Theme:

AV Linux 6.0 comes without a custom mouse cursor theme as the default. Two optional custom cursor themes are included 'Pick' featuring guitar picks as the cursor and 'Pulse Glass' with a glossy pulsating cursor. To change the cursor theme open 'Accessories' → 'Root Terminal' and copy and paste or enter:

```
gedit /usr/share/icons/default/index.theme
```

To change to the 'Pick' theme change the 'Inherits=' line like this:

```
[icon theme]
Inherits=Pick
```

To change to the 'Pulse-Glass' theme change the 'Inherits=' line like this:

```
[icon theme]
Inherits=Pulse-Glass
```

To have no cursor theme and use the system default cursor edit the 'Inherits=' like this:

```
[icon theme]
Inherits=neutral
```

When you have finished editing the 'index.theme' file click 'Save' in gedit and log out and log back in.

PERFORMANCE SETTINGS:

CPU Governor Settings:

Governing the CPU in AV Linux is handled by a small light GTK-based tray utility known as 'Trayfreq'. Simply click and right-click on the LXPanel applet and select your desired governor. Trayfreq can be further configured and have it's defaults changed by editing it's 'trayfreq.config' file found in /usr/share/trayfreq. To do this use 'Accessories' → Root Terminal and this command:

```
gedit /usr/share/trayfreq/trayfreq.config
```

Trayfreq example default settings in AV Linux using the 'ondemand' governor on battery power and 'performance' governor on AC power:

```
[battery]
show=1
governor=ondemand
[ac]
governor=performance
#[events]
#activate=/usr/bin/xterm
[governor]
default=performance
#[frequency]
#default=800000
```

Monitor Display DPMS:

AV Linux does not use a Screensaver due to the unnecessary diversion of resources during recording or editing operations. DPMS (Display Power Management Signaling) is used to turn off the Monitor with the system defaults of 60mins to blank the display, 120mins to suspend the display and powering off the display disabled. To edit the /etc/xdg/autostart/dpms-settings.desktop configuration file run this command in a Root Terminal:

```
gedit /etc/xdg/autostart/dpms-settings.desktop
```

This will open a text file to edit containing the following:

```
[Desktop Entry]
Categories=Application;System
Comment=Monitor DPMS Settings
Encoding=UTF-8
Exec=xset s off dpms 3600 7200 0
Hidden=false
Name=Monitor DPMS Settings
Terminal=false
Type=Application
Version=1.0
Icon=
```

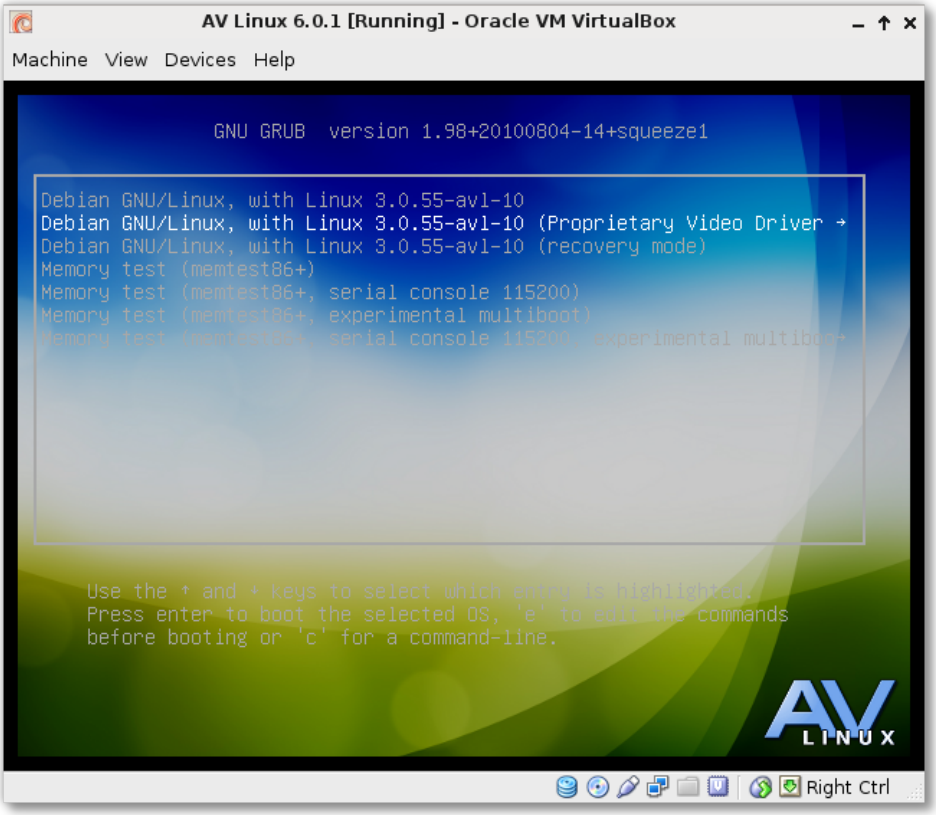
To change the DPMS duration settings edit the highlighted line “Exec=xset s off dpms 3600 7200 0”. The durations are in seconds not minutes so multiply your desired minutes by 60. The first number (3600) is the blank time, the second (7200) is the suspend time and the third number (0) is to disable monitor shutdown. Entering a third number greater than the first or second will enable shutdown mode. When you have made your changes they will not become effective until a reboot.

PROPRIETARY VIDEO DRIVERS IN AV LINUX:

The addition of proprietary 3D nVidia and Ati video card drivers is handled by a 3rd party script in AV Linux called SGFXI. **Proprietary drivers are not supported and are to be installed at the risk and discretion of the user**. AV Linux does supply a method to help facilitate the installation of proprietary 3D drivers since many users want this option and Debian Linux has no tools to handle this operation other than for the stock Debian Kernel which AV Linux does not use.

METHOD 1 (Preferred) – GRUB2 Proprietary Driver Mode:

When you boot into an AV Linux 6.0 install you will notice that there is an extra GRUB boot option just below the default top boot line in the GRUB2 boot menu. This is a special optional non-modesetting workaround created by Tony Brijeski to facilitate using SGFXI. By using this option all modesetting for nVidia and Ati video cards is disabled so SGFXI does not have to be run twice. To use this optional boot mode you need to select this option in the few seconds the GRUB2 menu splash displays at boot by using your keyboard arrow keys to highlight and select the second boot option. Once selected the kernel will boot as usual showing the boot progress text in the console. When the kernel is done booting you will be presented with a console login. For this mode to function the user is required to login as Root. At the console prompt type your username as 'root' and then enter your Root password not your regular user password. Once logged in as Root SGFXI will automatically run and attempt to install the proprietary video drivers.


AV Linux 6.0.1 [Running] - Oracle VM VirtualBox
Machine View Devices Help
GNU GRUB version 1.98+20100804-14+squeeze1
Debian GNU/Linux, with Linux 3.0.55-avl-10
Debian GNU/Linux, with Linux 3.0.55-avl-10 (Proprietary Video Driver
Debian GNU/Linux, with Linux 3.0.55-avl-10 (recovery mode)
Memory test (memtest86+)
Memory test (memtest86+, serial console 115200)
Memory test (memtest86+, experimental multiboot)
Use the ↑ and ↓ keys to select which entry is highlighted.
Press enter to boot the selected OS, `e' to edit the commands
before booting or `c' for a command-line.
AV LINUX
Right Ctrl

***IMPORTANT KMS MODESETTING INFO FOR ATI GRAPHICS USERS* This is only recommended if you are certain your hardware supports KMS or if you are experiencing Xorg ATI driver issues!**

ATI Graphics Cards have a wide-ranging variety of chipsets and accompanying Xorg drivers including ati, radeon and radeonhd. Generally speaking ATI Proprietary drivers do not use KMS (Kernel Mode Setting) and only some ATI chipsets support using KMS with Xorg drivers. For this reason and for maximum ATI support with the AV Linux LiveDVD KMS is enabled in the Kernel but is switched off in the /etc/modprobe.d/radeon-kms.conf configuration file. In order to have fully functional KMS with Xorg ATI drivers users need to enable the option in the 'radeon-kms.conf' file. To accomplish this go to 'Accessories' → 'Root Terminal' and copy and paste this command:

```
gedit /etc/modprobe.d/radeon-kms.conf
```

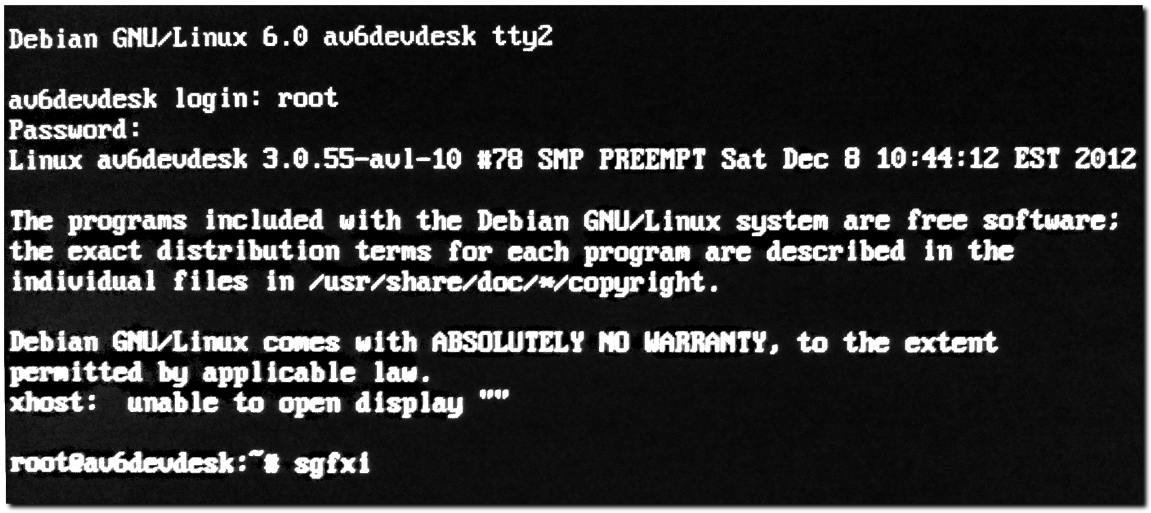
This will open the gedit text editor so you can modify the 'radeon-kms.conf' file. To enable KMS edit the file to look like this:

```
options radeon modeset=1
```

Once edited click 'Save' in the gedit text editor and reboot your computer to allow KMS to take effect.

METHOD 2 - Alternate SGFXI Options:

SGFXI can also be run in a regular Desktop session however it needs to be run in the bare system console 'outside' of the LXDE UI. In order to run SGFXI this way you need to shut down LXDE by hitting the Ctrl, Alt, F2 keys simultaneously. Your system will then go to the basic console where you will need to login. Since SGFXI requires running with Root privileges you need to login as 'root' and then enter your root password. If a login message doesn't immediately appear in the console you may need to hit the 'Enter' key to display the login prompt.


Debian GNU/Linux 6.0 av6devdesk tty2
av6devdesk login: root
Password:
Linux av6devdesk 3.0.55-av1-10 #78 SMP PREEMPT Sat Dec 8 10:44:12 EST 2012
The programs included with the Debian GNU/Linux system are free software;
the exact distribution terms for each program are described in the
individual files in /usr/share/doc/*/copyright.
Debian GNU/Linux comes with ABSOLUTELY NO WARRANTY, to the extent
permitted by applicable law.
xhost: unable to open display ""
root@av6devdesk:~# sgfxi

****IMPORTANT**** Because of the KMS issues noted above it is often necessary to run SGFXI twice in a row to completely install the replacement proprietary Video drivers. In this case SGFXI will most likely run the first time and obtain the drivers and when you are prompted to log back into LXDE the computer will fail to use the new driver and leave you at the bare console unable to login. The reason for this is that SGFXI cannot both install the drivers and blacklist modules from the Xorg Video drivers at the same time. Although this is somewhat cumbersome usually logging in as 'root' and running SGFXI again with the same options as you used the first time will allow the driver installation to complete.

SGFXI is quite flexible and can be run with many optional commands as listed below which were taken from the help file which can be accessed in a terminal by typing 'sgfxi -h':

EXACT VERSION NUMBERS SUBJECT TO CHANGE

Script Requirements: Debian/Ubuntu/Arch/Fedora based systems.
Xorg version required: 7.1/1.1 or greater - Your X version: 1.10
Linux Kernel required: 2.6.18 or greater - Your kernel: 3.0.55-avl-10
- -
'**default(s):'** - The driver installed automatically by sgfxi unless it is not supported by your card. Some older cards will force an override of this basic default. Script will print out what driver it will install when you start it up, with option to exit.

'**supported-drivers:'** choices require -o <see -o for correct syntax> to install>.
Fglrx: default: 12.10
Other supported-drivers: 12.10 12-7 12-6 12.10 12-7 12-6 12-4 12-3 12-2 12-1 11-12 11-11 11-10 11-9 11-8 11-7 11-6 11-5 11-4 11-3 11-2 11-1

Nvidia: defaults (current + legacy - 3 2 1): 310.19 304.64 173.14.36 96.43.23 71.86.15
Other supported-drivers: 304.64 304.60 304.51 304.43 295.71 290.10 285.05.09 280.13 275.43 270.41.19 260.19.44 256.53 195.36.31 190.53 185.18.36 180.60 177.82 173.14.35 169.12 100.14.19 96.43.20 71.86.14

The following beta drivers are available:
nvidia: 313.09
fgrlx: 12.11

Script Options:

-A Run the install non-interactively. Will not restart x at end.
-b Enable tripleBuffer (nvidia only). triplebuffer can reduce 3d performance on cards with low graphics memory (64 mB or less). Default is disabled/off.
-B Use latest Beta Driver for your card type. Autodetects card type/beta driver (nVidia/AMD cards only). If no beta driver is available, the current stable driver for your card type is used. (Also checks nvidia for live latest beta information, and replaces script defaults with newer if present)
-c Force use of Xorg composite mode. Beryl/Compiz requires this for 3d. Old nvidia/ATI/Intel cards not supported. Composite is default ON for newer nVidia/ATI cards (-c not required).
-C Skip Xorg configuration. Only use this if your Xorg is already working with your driver. Main use is if you have dual card output and don't want xorg.conf changed.
-d Installs distro packaged nVidia/fglrx drivers. ATI/nVidia cards only (formerly -s).
-D Build Distro (Debian/Ubuntu only) packages for fglrx with FGLRX binary run package, then install them (formerly -F). Not recommended. Because of constant package builder failures, the direct install method is now default.
-f Force option. Forces (re)install of your driver, bypasses module check/build (nVidia only).
-h View this help menu.
-j Alternate text/output script colors. Requires this syntax: -j 0 (sets to monochrome)

-j 1 (default); -j 2 (pale); -j 3 (earthy); -j 4 (dark - for light console background)
-k Build kernel module either for current kernel or another kernel (with -K <kernel version
Can be run in X. Simply builds the kernel module for that kernel, and does not remove any other modules or drivers, or update /etc/X11/xorg.conf. Requires previous install with sgfxi of the same driver to work. This feature only supports nVidia drivers.
Hint: sgfxi -! 40 will install modules to all your non-running kernels automatically!
-K Installs nVidia/fglrx driver for another kernel. Syntax: sgfxi -K 2.6.25-2
sgfxi will double check that the kernel exists (Debian/Ubuntu only).
-L List current live driver or status data then exit. Requires extra argument: d to show current drivers; n to show current nvidia support status; f to show current fglrx support status; v to show current latest local + remote sgfxi svn/server version information.
-n Automatically installs correct native xorg nvidia, intel, or ati/amd driver for your system. Cleans up old binary driver stuff, updates xorg.conf with new driver information, and cleans nvidia and fgrlx stuff out of xorg.conf. For radeon/noveau, also preps.
-N Force install of specific xorg driver. Syntax: sgfxi -N <driver> Ex: sgfxi -N radeon
Supported Xorg drivers: apm ark ati chips cirrus fbdev geode glide glint i128 i740 intel imstt mach64 mga neomagic nsc openchrome nouveau r128 radeon rendition s3 s3virge savage siliconmotion sis sisusb tdfx tga trident tseng vesa vga via voodoo vmware v4l
Also configures xorg.conf as required. Full radeon xorg 3d configuration automatically.
-o Override default: install a specific driver, this is an absolute override - syntax:
-o 177.68 (for nVidia) or: -o 8-6 (for fglrx)
-q Turns off composite mode. Default is ON for newer nVidia/ATI cards.
-Q Skip start X Question, automatically start X post driver install.
-r Remove mode lines from xorg.conf
-R Skips self updating feature. No restart.
-U Forces sgfxi to update itself, must be root, but can be in x. Exits after.
-v Prints sgfxi current version information. Exits after.
-W Skip all wget downloads. Only use this to reinstall a driver that has already been downloaded using sgfxi at least once previously.
-x Reverts to default libXvMC.so.1 for system instead of nVidia package (nVidia only)
-X Use to skip auto X start/stop. Do not use this unless you have a good reason to not want X start/stop tests to run. Gives start X option on completion if not in X.
-Y Clean script download and backup files. Shows a list of cleanup actions to carry out, including script uninstaller.
Can be run in X, as root.
-z Backup and recreate xorg.conf using the command: X -configure (requires X/Xorg command)
Only use if you know what you are doing! This creates a simple, basic xorg.conf file.

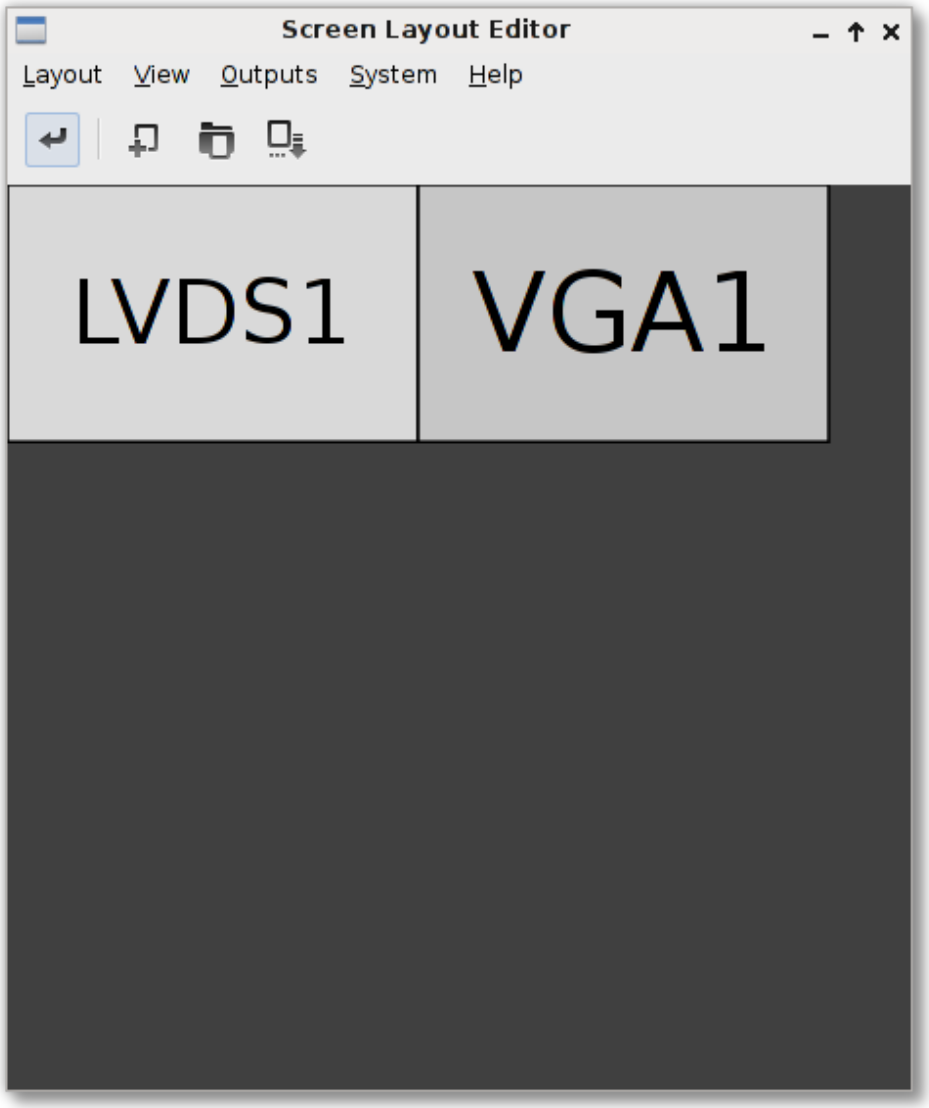
Advanced Options :: Only for Specialized Cases

-! 32 Remove/Purge all drivers; remove all grub modeline blacklists; restore system to default without redoing xorg.conf; moves xorg.conf to backup. Only use this on new Xorgs that do not require xorg.conf file to operate. Using this command restores system to default.
-! 33 - Skip Grub file tests. Important: Only use with nVidia/ATI if radeon/nouveau have been blacklisted.
-! 40 Create modules for all your kernels (nVidia only). Will loop through and test each if can be made, then create the modules, excluding your running kernel.
You must have already installed an nVidia driver with sgfxi to use -! 40
Note: if your installed driver is NOT the default sgfxi offers, you have to use either the -o <driver number> OR the -B option (if you are using current beta driver) as well as the -! 40 option. EG: to install beta to all kernels: sgfxi -B -! 40

MONITOR AND DISPLAY SETTINGS:

AV Linux uses an application called 'Arandr' to handle setting the monitor screen resolution and also for setting up Dual-head displays. Arandr can be accessed by right-clicking on the Desktop and selecting 'Monitor Display Settings' from the Openbox Mini-menu or found in the 'Preferences' menu. To change and select the monitor resolution right-click on the rectangle within the Arandr window that represents the Video output and display you are using. If you are using more than one output and display there will be more than one rectangle present within the Arandr window.

****PLEASE NOTE** To use Dual-head for many nVidia and ATI Video cards it will be necessary to have Proprietary Video Drivers installed as detailed in the previous 'Proprietary Video Drivers In AV Linux' section.**



Making a Persistent Dual-Head Setup:

If you have a permanent setup with Dual-head monitors you may want to have the Arandr configuration settings automatically start it up for you when you boot up your computer. This is possible but requires some extra steps and placing a '.desktop' launcher in /home/YOURUSERNAME/.config/autostart. Here's how to do it:

- Start Arandr configure the displays as desired.

- Save and name your configuration from the 'Save As' menu (ie dualhead.sh).

- 'dualhead.sh' will be saved in /home/YOURUSERNAME/.screenlayout by default.

- Find your created 'dualhead.sh' in the '.screenlayout' folder and right-click on it.

- Go to 'Properties' -->'Permissions' and make sure 'Allow executing file as program' is checked.

- In your home folder right-click and 'Create Document' → 'Empty File' and name it 'dualhead.desktop'.

- Right-click on the 'dualhead.desktop' file you created and 'Open with gedit'

- From the example below copy and paste the Launcher text into the 'dualhead.desktop' file.

- Change the yellow highlighted 'YOURUSERNAME' to your actual User name'

- Save your changes in gedit

- Copy the 'dualhead .desktop' file to /home/YOURUSERNAME/.config/autostart.

- On reboot your ArandR configuration should be automatically loaded.

Example 'dualhead.desktop' Launcher File:

```
[Desktop Entry]
Encoding=UTF-8
Version=1.0
Type=Application
Categories=System
Terminal=false
Icon=
Name=Dualhead
Exec=/home/YOURUSERNAME/.screenlayout/dualhead.sh
Comment=Autostart Dual Monitors
```

COMPIZ WINDOW MANAGER:

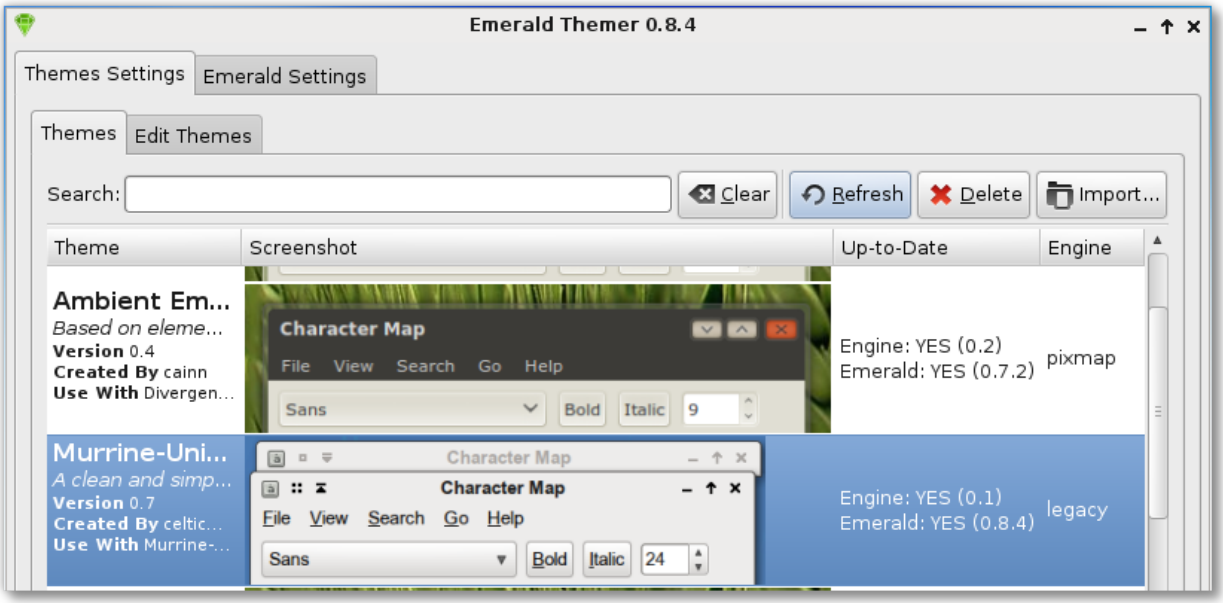
By default AV Linux comes with the light and efficient Openbox Window Manager. LXDE is also capable of utilizing the Compiz Window Manager which gives an assortment of 3D desktop effects. It is important to note that LXDE does not yet have the full abilities of Gnome or KDE to implement all possible effect plugins. In particular the LXpanel does not have multiple desktop viewports which prevents having more than one desktop workspace when using Compiz. Other than that caveat Compiz is a great way to add some visual bling to your system.

The first prerequisite to using Compiz is having 3D Video Drivers installed. Intel graphics cards have out of the box 3D support for the most part. Most Ati cards have varying degrees of 3D support through using the Xorg radeon/radeonhd driver and full support using the proprietary video drivers detailed in the previous section. Nvidia 3D support is only available currently by installing the proprietary nVidia drivers also detailed in the previous section.

To use Compiz it is necessary to first select your options using the Compiz Settings Manager and use the included Emerald Theme Manager to select one of the pre-installed Emerald themes or any you have installed. All setup for Compiz can be easily done by using the Fusion Icon found in the System Tools menu which puts all the Compiz related programs into one application.

Autostarting Compiz:

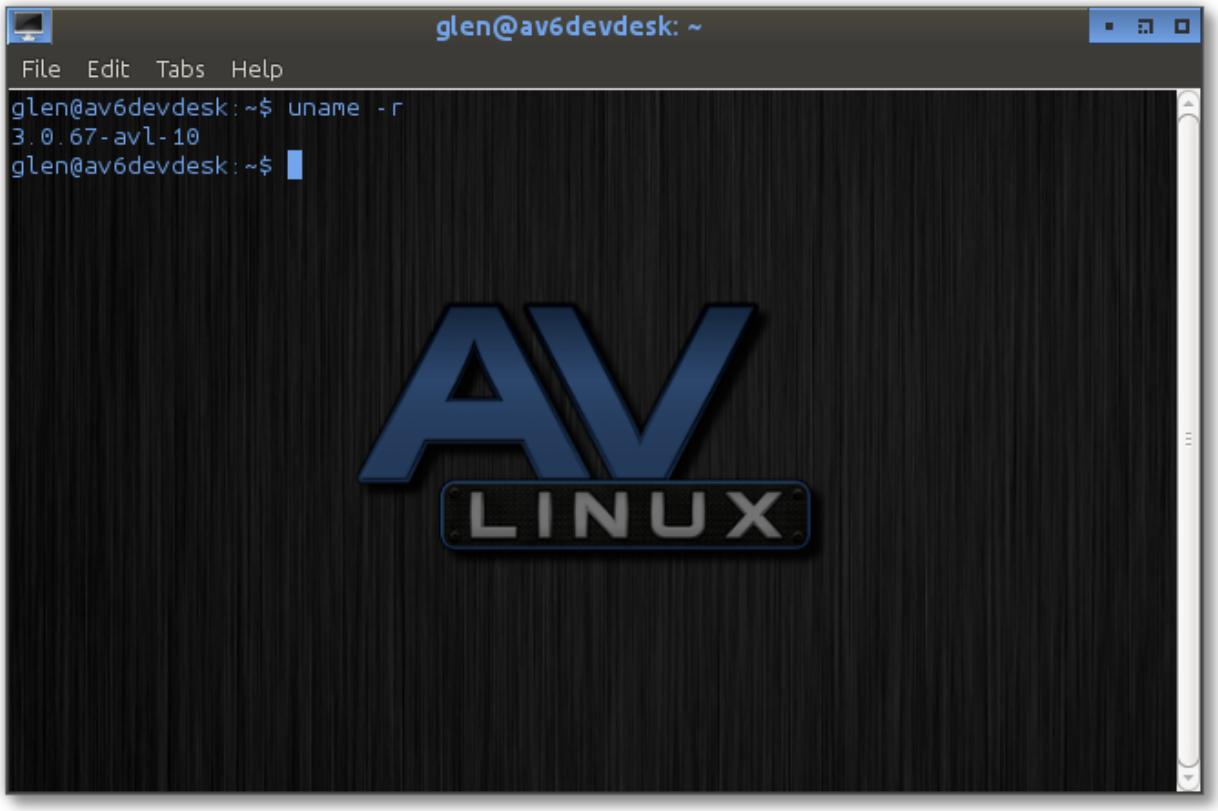
To have Compiz start at login it is necessary to copy the 'Autostart Compiz' launcher found in the Extra Goodies → Autostart Launchers folder to one of two possible system autostart folders. To have the launcher work only for your user copy the Autostart Compiz launcher to /home/YOURUSERNAME/.config/autostart. To have the launcher work system-wide for all users copy the launcher as Root to /etc/xdg/autostart.



AV LINUX KERNELS:

Default 3.6.11.2 Kernel:

AV Linux offers a range of choices for post-install Kernels, by default it features the performance advantages of a stock 3.6.11.2-i686 Kernel. This Kernel features the best of both worlds by having -rt IRQ Threading in a mainline Kernel. This Kernel offers rtirq-init capabilities on the new Juju FireWire stack making it an optimum choice for low-latency audio application. There is also a selection of older but viable Kernels in the AV Linux Kernel FTP in the link below. AV Linux Kernels are built by Trulan Martin. Updated AV Linux Kernels can be installed from the AV Linux Kernel Repository which is enabled by default in the AV Linux 6.0 Software Sources, for AV Linux 6.0 there is now an additional Testing Repository that has to be manually enabled. It is strongly recommended to only change or update your Kernel if absolutely necessary.



FFADO FireWire Drivers:

AV Linux also features the FireWire Audio Device Drivers provided by the 'FFADO' project. This provides support for using a growing number of supported FireWire Audio Devices. A more detailed list can be found in the 'Supported Hardware' section of this manual.

KERNEL CHEATCODES:

Enabled By Default in AV Linux 6.0.1:

threadirqs - force-threaded irq handlers (realtime preemption)
- Threaded irq's have long been a major part of the RT_PREEMPT patchset, and can offer significant benefits for low latency audio uses. Use this parameter unless you have a really good reason not to.

transparent_hugepage=never - turn off hugepages (a new memory management feature)
- Transparent hugepages should be useful in memory intensive applications, such as virtual machines, databases, and possibly video editing. If ultra-low latency is desired, it seems to be best to disable them. Use this parameter if you want to squeeze the lowest latency possible out of your audio chain.

To Be Enabled/Disabled Optionally:

noautogroup - disable auto cgroup scheduling
- The famous "200 line patch that does wonders", aka SCHED_AUTOGROUP, is useful when cpu-intensive tasks, such as make, are being done in a terminal, while the desktop is in use. Use this parameter to disable it if you think it is causing problems.

Example grub kernel command line:
threadirqs transparent_hugepage=never quiet

Making GRUB-2 Add the Boot Flags Automatically:

1. As root, edit:
/etc/default/grub

2. Add the desired boot flags to the GRUB_CMDLINE_LINUX_DEFAULT line, like this:
```
GRUB_CMDLINE_LINUX_DEFAULT="threadirqs transparent_hugepage=never"
```

3. Then run: (also as root)
update-grub

4. Reboot

AV LINUX 6.0.1 SOFTWARE:

Included Software Applications
(Subject to Minor Changes, Support Libs Not Shown)

APPLICATION	DESCRIPTION	VERSION
A2JMIDID	JACK/ALSA MIDI Bridge	8
Aloop-Daemon	ALSA Loopback Script	1.0
AmSynth	Analog Modelling Synthesizer	1.4GIT
Ardour	Digital Audio Workstation	2.8.16
ArdourVST	Ardour w/ Windows VST Support	2.8.16
Ardour 3	Digital Audio Workstation (version 3.0)	3.1-134GIT
Ardour 3-VST	Ardour 3.0 w/Windows VST Support	3.1-134GIT
Audacity	Soundfile Editor	2.0.3
Blender3D	Animation Modeler	2.63
Brasero	CD/DVD Authoring and Burning	2.30.3
Bristol	Classic Analog Synthesizer Emulations	0.60.10
Calf Plugins	LV2 Audio Plugins and JACK Host	0.0.19GIT
Carla	Multi-Plugin Host	0.8.0
Cinelerra	Non-Linear Video Editor	2.2CV
Clementine	QT4 Amarok based Music Player	1.0
DIN	Din Is Noise Synthesizer	5.2.1
DeVeDe	Video DVD Authoring	3.16
DrumGizmo	Virtual Drum Instrument LV2 Plugin	0.9.3
Easytag	Music File Tagging	2.1.7
Evince	PDF Document Viewer	2.30.3
Festige	JACK Host For WindowsVST Plugins	1.0.2
FFADO	FireWire Audio Drivers	2..1
fmpeg	CLI Audio/Video Converter	0.7.15SVN
FFMultiplex	Audio Video Stream Muxer GUI	0.1
FileZilla	FTP Client	3.3.1
Gedit	Text Editor with Syntax Highlighting	2.30.3
GIMP	Advanced Image File Editor	2.6.10
Gnome Photo Print	Photo Printing Utility	0.7.0
GParted	Hard Drive Partition Editor	0.7.0
Gthumb	Image File Viewer	0.2.14.1
Guitarix	Guitar Effects Processor with LV2 Plugins	0.25
Handbrake	DVD Ripper and H.264 Video Encoder	0.9.6
Hydrogen	Advanced Drum Sequencer and Programmer	0.9.6b1
Iceweasel	Mozilla Web Browser	14.0
IDJC	Internet Disc Jockey Console	0.8.5
Inkscape	SVG Graphics Editor	0.47-2b1
Invada Plugins	Assorted LV2 Plugins	1.2.0
JACK	Low Latency Audio Server+Session Support	0.121.3SVN
JACK Control	Qt GUI for JACK	0.3.9
JACK Capture	Capture Output of JACK into an Audio File	0.9.67
Kdenlive	KDE4-based NLE Video Editor	0.9.3
Kompozer	WYSIWYG Web Page Editor	0.8b3
LADSPA Plugins	ambisonic, autotalent, calf, caps, cmt, csa, fil, guitarix, Invada, leet, swh, rev, tap, vlevel	

Continued:

APPLICATION	DESCRIPTION	VERSION
LibreOffice	Full Office Productivity Suite	4.0.3
Lingot	Guitar Tuner	0.9.1
linuxDSP Plugins	LinuxVST and LV2 Plugins (Demos)	
LMMS	Linux MultiMedia Studio	0.4.13
Loomer Plugins	LinuxVST Audio Plugins (Demo Versions)	
Meterbridge	JACK Meter Suite	0.9.2+b1
MhWaveEdit	Lightweight Soundfile Editor	1.4.22
Mixxx	DJ Focused Music Player	1.11b1
Mudita24 Control	Updated Mixer for ice1712 Soundcards	1.0.3
MuseScore	Music Score Editing	1.3
Mverb	LV2 Reverb Plugin	1.0
Mypaint	Painting Program	0.9.0
Nautilus	File Manager	2.30
Non-Things	Suite with DAW, Sequencer, Mixer and Session Mgr.	1.9.4+GIT
Openshot	Non-Linear Video Editor	1.4.3
Patchage	JACK Patchbay/Routing	0.5.0
Phasex	Phase Harmonic Advanced Synthesizer	14.97
Pianoteq	Piano Modeling Software (Demo Version)	4.2.1
QjackCtl	GUI for JACK Settings	0.3.10
QMIDIArp	MIDI Arpeggiator	0.5.3
Qsynth	Qt Frontend for Fluidsynth	0.3.6
Qsampler	LinuxSampler QT4 GUI	0.2.2.28CVS
Qtractor	Audio/MIDI Sequencer	0.5.5
Renoise	Tracker Style Audio Sequencer (Demo Version)	2.8
Rosegarden	QT4-base MIDI Sequencer and Score Editor	12.04
Scribus	Desktop Publishing Application	1.4.1
Seq24	Pattern-based MIDI Sequencer	0.9.2
SetBfree	Hammond B3 Organ Emulation	0.6.1
SGFXI	Automated Install Script for 3D Graphics Drivers	
Simple Scan	Easy Scanner Utility	2.31.1
Shutter	Screenshot Capturing and Editing	0.85.1
Sooperlooper	Live Looping Sampler	1.6.18
Swami	Soundfont/Instrument Editor	2.0.0
Synaptic	Software Package Manager	0.70.1
Transcribe!	Song Transcribing/Learning Tool (Demo Version)	8.21.1
Totem	Gstreamer based Movie/Media Player	2.30
Transmission	Bittorrent Client	2.03
TV-Viewer	Watch and Record TV	0.8.2b1
VMPK	Virtual Midi Piano Keyboard	0.4.0
Vee-One Plugins	Samplv1, SynthV1 and DrumkV1 LV2 Plugins	0.3.2
Wbar	Light Application Launch Bar	1.3.3
Whysynth	DSSI Synthesizer	20100922
WINE	Windows Compatibility Layer	1.4.1+rt
WineASIO	ASIO Driver for JACK	0.9.0
WinFF	ffmpeg based Audio/Video Converter	1.3.0
XArchiver	Compression and Unzip Utility	0.5.2
XineUI	Media Player based on Xine	0.99.6
XJadeo	Video Player with JACK Transport	0.7.0
Yoshimi	Real Time Synthesizer	1.1.0
Zita-Reverb	LV2 Reverb Plugin	20130420
Zita-Retuner	LV2 Autotuner Plugin	20130419

INSTALLING SOFTWARE IN AV LINUX:

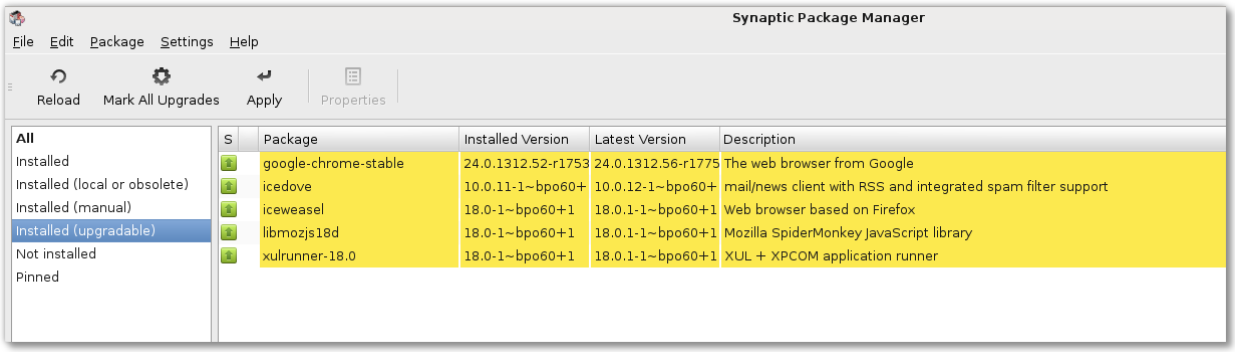
There are 3 main methods of installing software in AV Linux. For Repository-based software packages the Synaptic Package Manager is used, for independently downloaded Debian '.deb' files the Gdebi Package Installer is used and finally for AV Linux 'Package Bundle' Zips the Terminal and 'dpkg' command are used.

Do Not Use 'apt-get dist-upgrade'!:

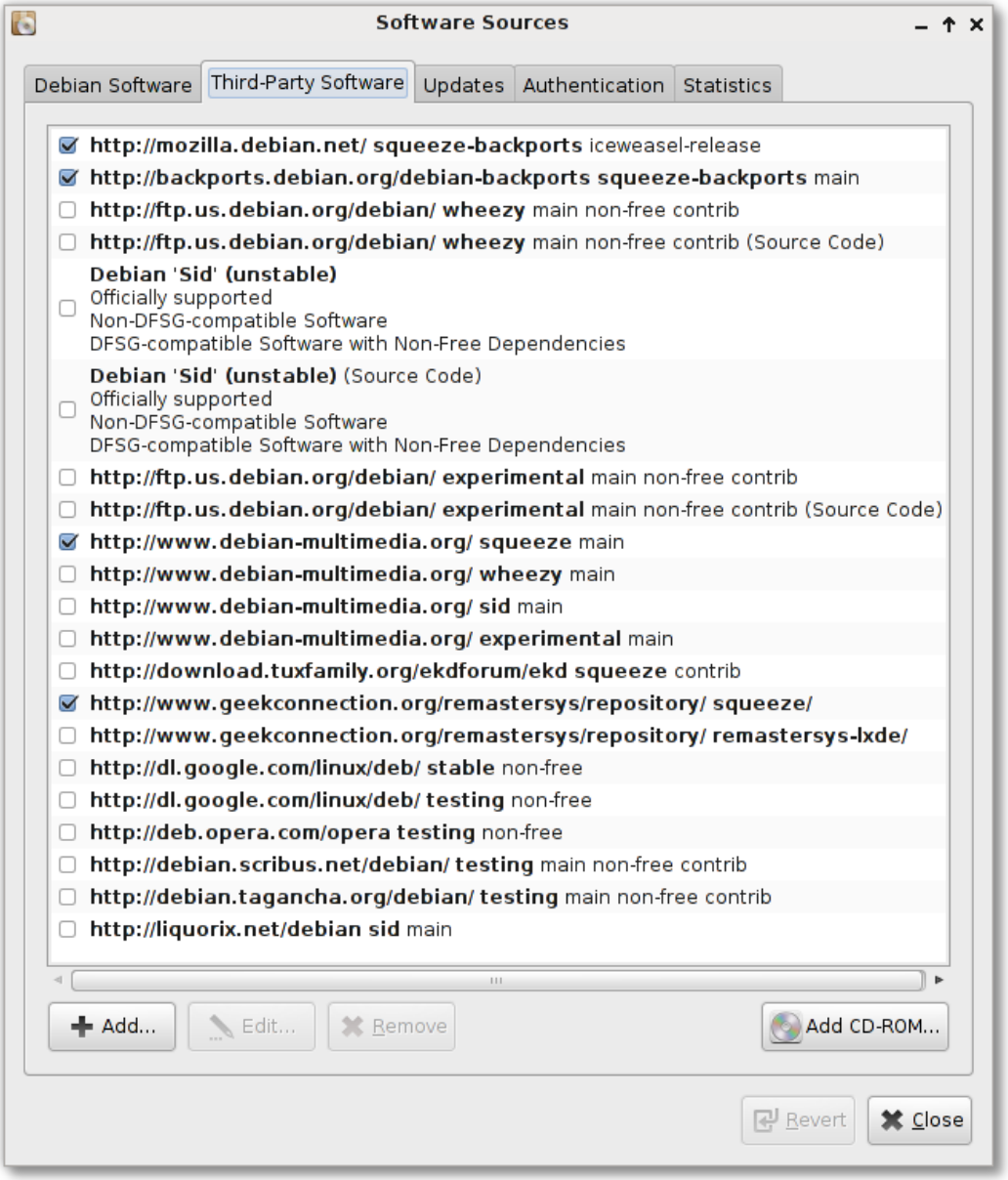
WARNING! – It is not advised to use 'apt-get upgrade' or 'apt-get dist-upgrade' in AV Linux as is common in other Debian-based Distributions. AV Linux contains many specially customized, pinned and held packages that would potentially get overwritten by a dist-upgrade and break the system. In addition AV Linux is to be used with the Debian Squeeze repositories ONLY, using the Squeeze-Backports, Testing (Wheezy) and Unstable (Sid) repositories is unsupported and will cause potential conflicts with the existing custom 'avlinux' Packages. By default AV Linux has the repositories recommended for daily use enabled so unless you are certain about what you are doing do not make changes to the Software Sources.

Synaptic Package Manager:

The Synaptic Package Manager is found in the 'Preferences' Menu and serves as a graphical means to keep inventory of all installed Debian '.deb' software packages and also to remove any installed packages and is the primary way of installing repository-based packages. Which packages appear as installable is determined by whatever Repositories are checked off in the 'Software Sources' utility (also found in the Preferences Menu. Updated packages appear by selecting the 'Installed (Upgradeable)' in the list in the left-hand pane. In AV Linux it is preferable to manually select the packages you wish to upgrade by clicking on them until they are highlighted (use the Ctrl or Shift key to select multiple packages). Once you have selected the packages you wish to upgrade right click on them and select 'Mark for Upgrade'. This method is preferable to using the 'Mark All Upgrades' button at the top of the Synaptic window.



The Software Sources Utility:



Gdebi Package Installer:

For single packages downloaded from the web (ie the AV Linux package ftp) the Gdebi Package Installer is used. Simply download the package to your home folder and double click on it. The Gdebi Package Installer will automatically launch and ask for your Root password and install the package.

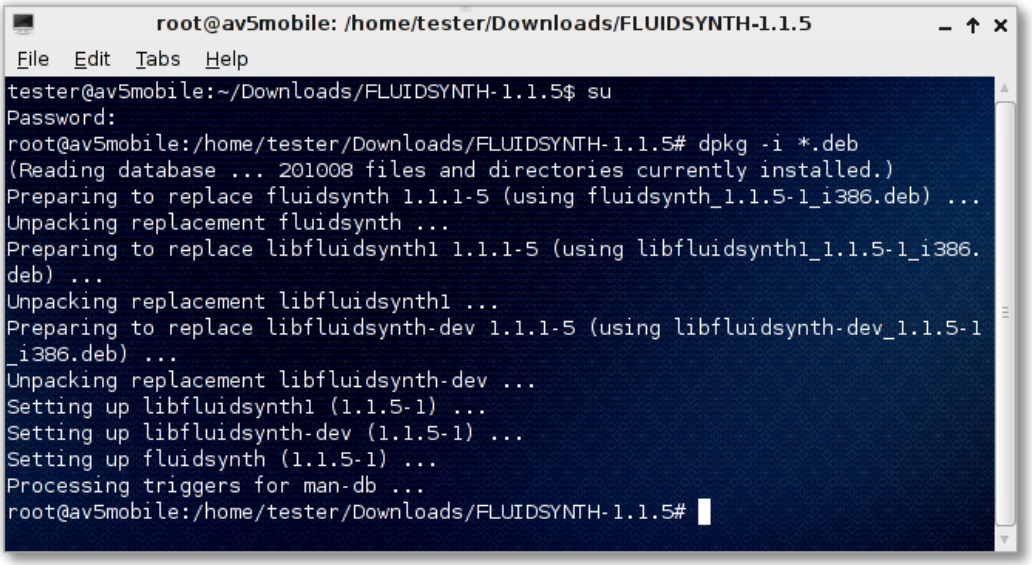
Installing Zipped Package Bundles with dpkg:

Occasionally optional packages for AV Linux may be be adapted from other Debian-based distros or Ubuntu. Since the dependencies for these packages may not be available in the usual Debian repositories to accommodate installation a 'Package Bundle' containing the necessary dependencies will be provided in a Zip file available in the AV Linux Packages FTP. Since many times the dependencies have to be installed in a specific order it is a better practice to install these bundled packages via the terminal with 'dpkg'.

To do this download the Package Bundle from the AV Linux Packages FTP folder to your home folder, once downloaded right-click on the Zip file and select 'Extract Here' to unzip it. Now double-click on the folder to open it and you will see a series of '.deb' packages and a 'README' text file. Take time to browse the README file for any special additional instructions. Go to the 'Scripts' menu in the Nautilus File Manager and select 'Terminal Here'. In the newly opened terminal type 'su' which will prompt you for your Root Password so you can administrate installing the series of packages with dpkg. Once you have entered your password and are returned to the terminal prompt enter or copy and paste this command:

dpkg -i *.deb

Watch the terminal output for any errors and once the packages are installed successfully close the terminal.

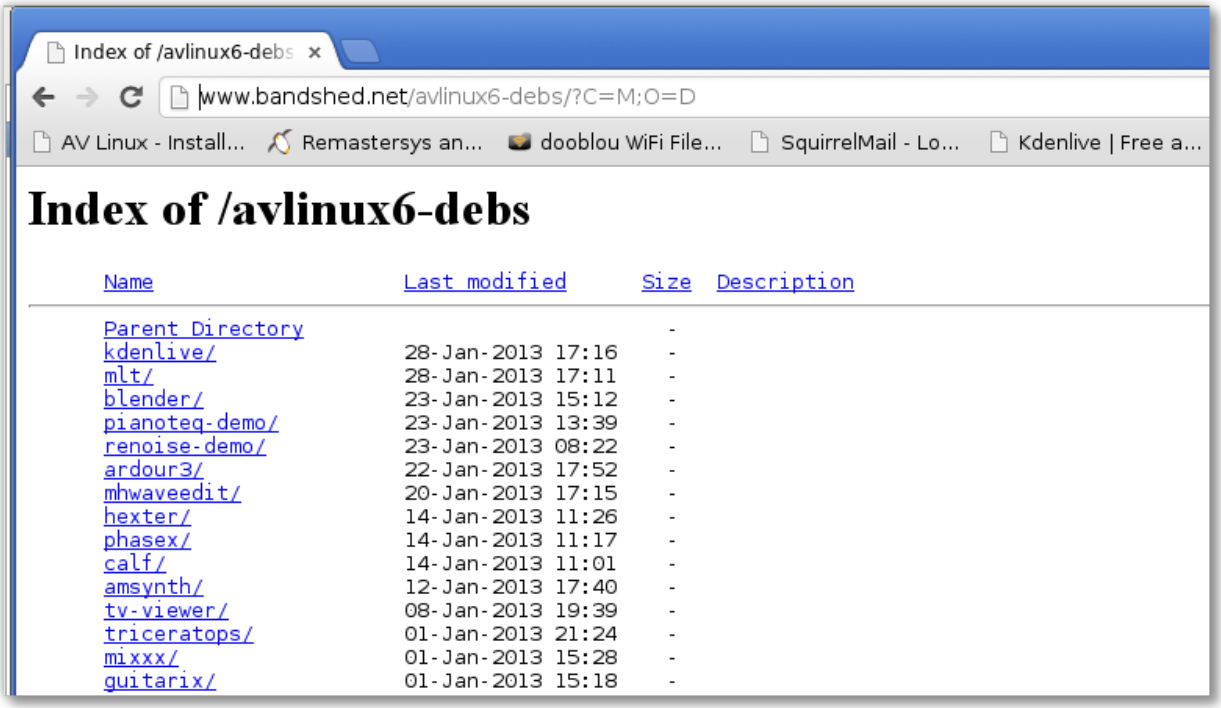

root@av5mobile: /home/tester/Downloads/FLUIDSYNTH-1.1.5
File Edit Tabs Help
tester@av5mobile:~/Downloads/FLUIDSYNTH-1.1.5$ su
Password:
root@av5mobile:/home/tester/Downloads/FLUIDSYNTH-1.1.5# dpkg -i *.deb
(Reading database ... 201008 files and directories currently installed.)
Preparing to replace fluidsynth 1.1.1-5 (using fluidsynth_1.1.5-1_i386.deb) ...
Unpacking replacement fluidsynth ...
Preparing to replace libfluidsynth1 1.1.1-5 (using libfluidsynth1_1.1.5-1_i386.deb) ...
Unpacking replacement libfluidsynth1 ...
Preparing to replace libfluidsynth-dev 1.1.1-5 (using libfluidsynth-dev_1.1.5-1_i386.deb) ...
Unpacking replacement libfluidsynth-dev ...
Setting up libfluidsynth1 (1.1.5-1) ...
Setting up libfluidsynth-dev (1.1.5-1) ...
Setting up fluidsynth (1.1.5-1) ...
Processing triggers for man-db ...
root@av5mobile:/home/tester/Downloads/FLUIDSYNTH-1.1.5#

WHERE TO FIND UPDATED PACKAGES;

AV Linux Custom Packages FTP Folder:

Updated custom user packages for between AV Linux ISO Image releases are uploaded to a special FTP Folder here: **http://bandshed.net/avlinux6-debs/** This FTP Folder is organized with separate folders for each application that is uploaded, depending on the nature of the application some of the application folders may contain subfolders as well. Application folders will generally contain the version number of the program that is present on the most recent AV Linux ISO Image and any new updated versions that have been uploaded, the reason for keeping the original versions is for users to be able to fall back to their original version in the case of an update not working as desired or introducing new and unwanted bugs. Usually newer uploaded program packages will have a higher version number than their predecessor or if it is a custom GIT or SVN package the date in the package name will determine what package is most recent. Programs that will install without requiring additional dependencies will be in the usual Debian '.deb' Package format, programs that require multiple dependent deb packages installed simultaneously with be provided in a compressed '.zip' package. If you are unsure about how to install these different package formats please refer to the previous 'Installing Software In AV Linux' section.

A little shortcut to see what package folders have been modified in the FTP most recently and therefore what programs have been updated last is to modify the URL of the FTP folder in your web browser to this: **http://www.bandshed.net/avlinux6-debs/?C=M;O=D** Using this command will change the browser view of the FTP and show the most recently modified folders at the top with the date they were modified.



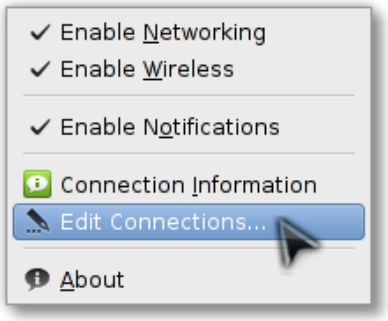
NETWORKING ON AV LINUX:

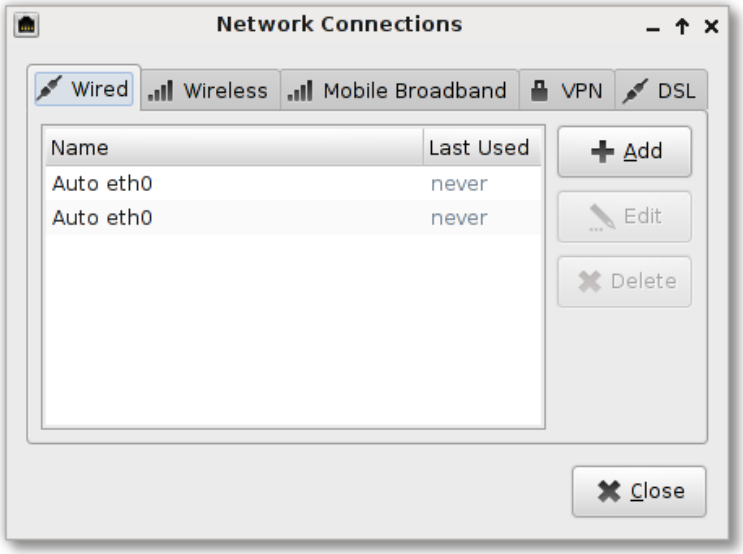
Out-of-the-box LAN and Wireless Support:

For most users with reasonably common networking hardware AV Linux should provide out-of-the-box Internet connectivity. Upon login to the Desktop the Network Manager should automatically look after connecting a LAN connection and Wireless should prompt the user to connect to available networks. You can access the network settings by clicking on the Network Manager icon found to the far right on the LXPanel.

If you left-click on the icon it will open a menu displaying all available connections like this:

If you right-click on the icon it will open a menu allowing you the option to edit your connections:

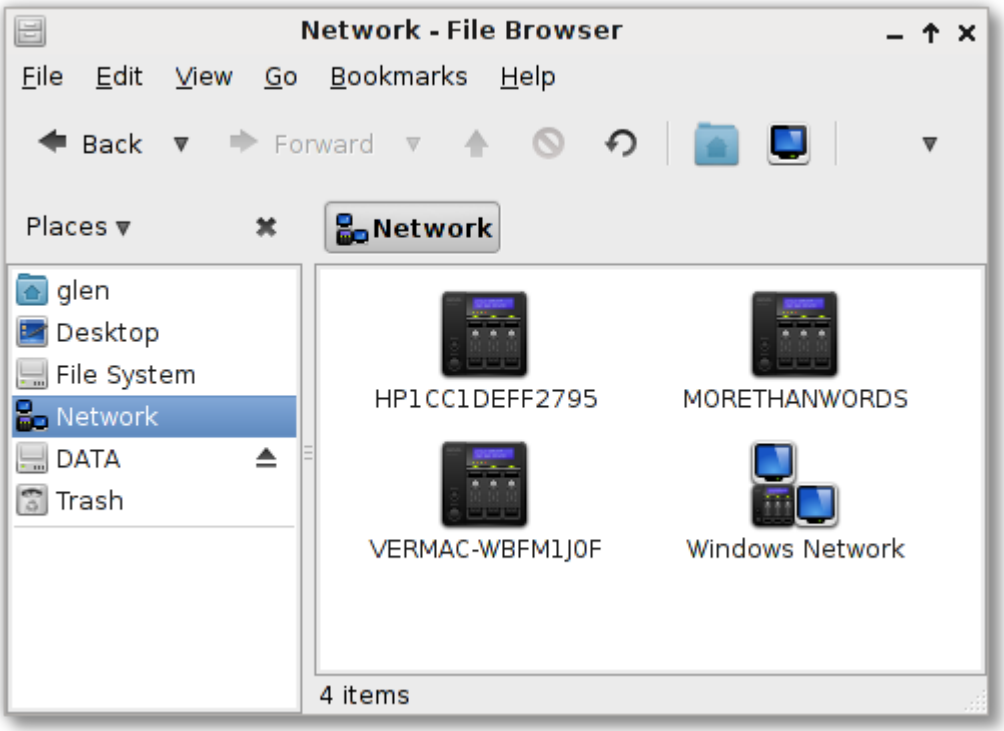




From here you can add, set up and edit Wired LAN, Wireless, Mobile Broadband USB, VPN and DSL connections. Specifics for each kind of setup are beyond the scope of this manual but generally speaking Wired LAN and Wireless connections shouldn't need manual setup. Many mobile broadband USB key devices are supported by AV Linux but most of them need manual configuration to work.

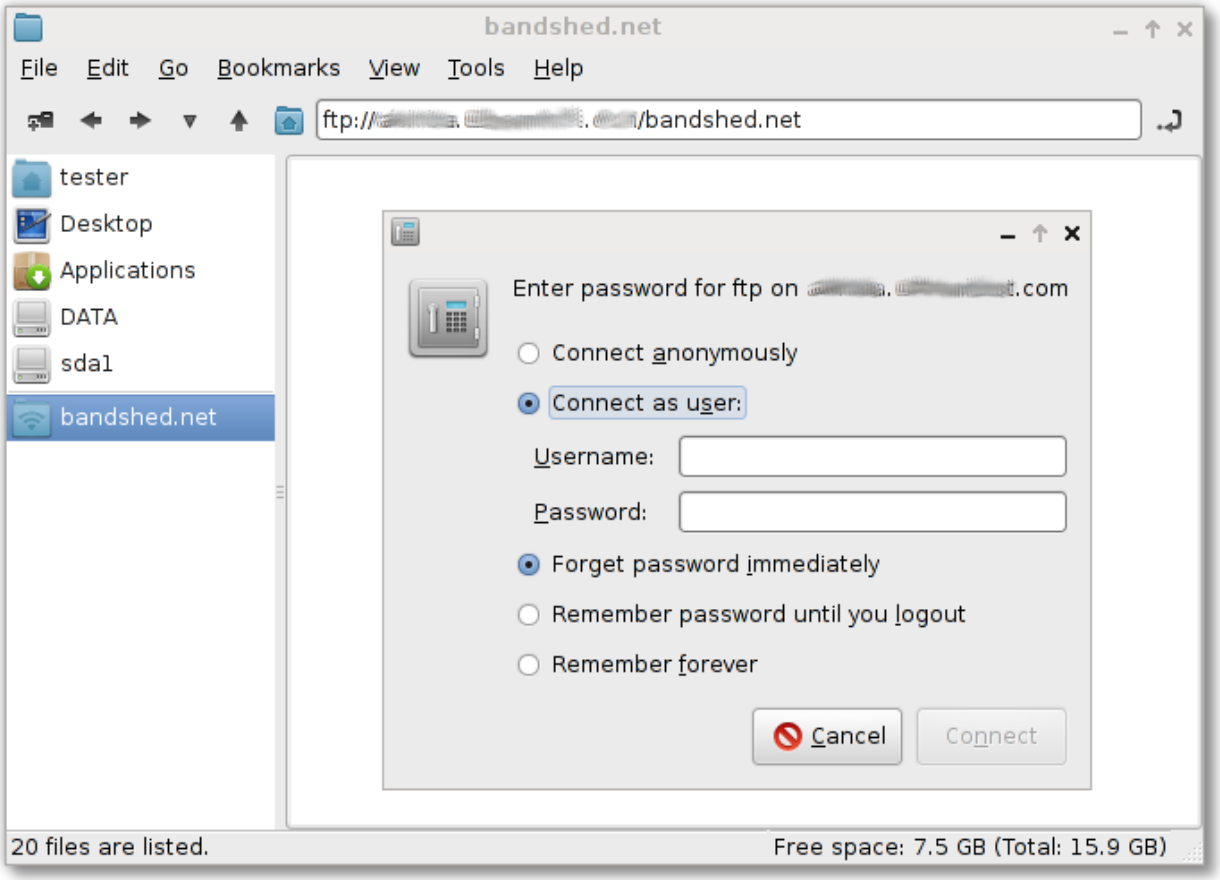
Networking with Windows Computers:

The Nautilus File Manager can be used to network with Windows PC's using Samba. To browse a Windows network use the 'Go' menu and then select 'Network'. Nautilus will open a new window with a network URL and any available windows machines should appear as being able to browse:



Connection to an FTP Folder:

Nautilus can also be used to move files to and from a remote FTP folder, to do this simply enter the web address into the URL bar at the top (accessed by using Ctrl+L). You will be prompted to enter your FTP username and password in order to access your FTP folder.



PRINTING WITH AV LINUX:

Getting Started:

Printing with Linux can either be 'Plug and Play' heaven or software dependency hell, a lot depends on what Printer you have, how old (or new) it is and how serious the manufacturer is about providing open-source friendly Linux drivers. If you don't already have a printer I strongly recommend Hewlett Packard products, they seem to be the only manufacturer taking printing on Linux seriously and have their own Linux 'HPLIP' project to support their hardware. There is no possible way for this manual to cover printing in any specific detail and many users may prefer to not use a printer at all on a streamlined Audio recording system like AV Linux. Nonetheless here are a few key points for those who wish to set up their printer.

Printer Group Permissions:

In order to administrate and use the CUPS print server the user will need to be a member of two main system groups that deal with printing...'lp' and 'lpadmin'. The quickest way to do this is with the Root Terminal and the 'adduser' command. Go to Accessories → Root Terminal and copy or enter these commands, 'USERNAME' is your actual regular username on the system:

```
adduser USERNAME lp

adduser USERNAME lpadmin
```

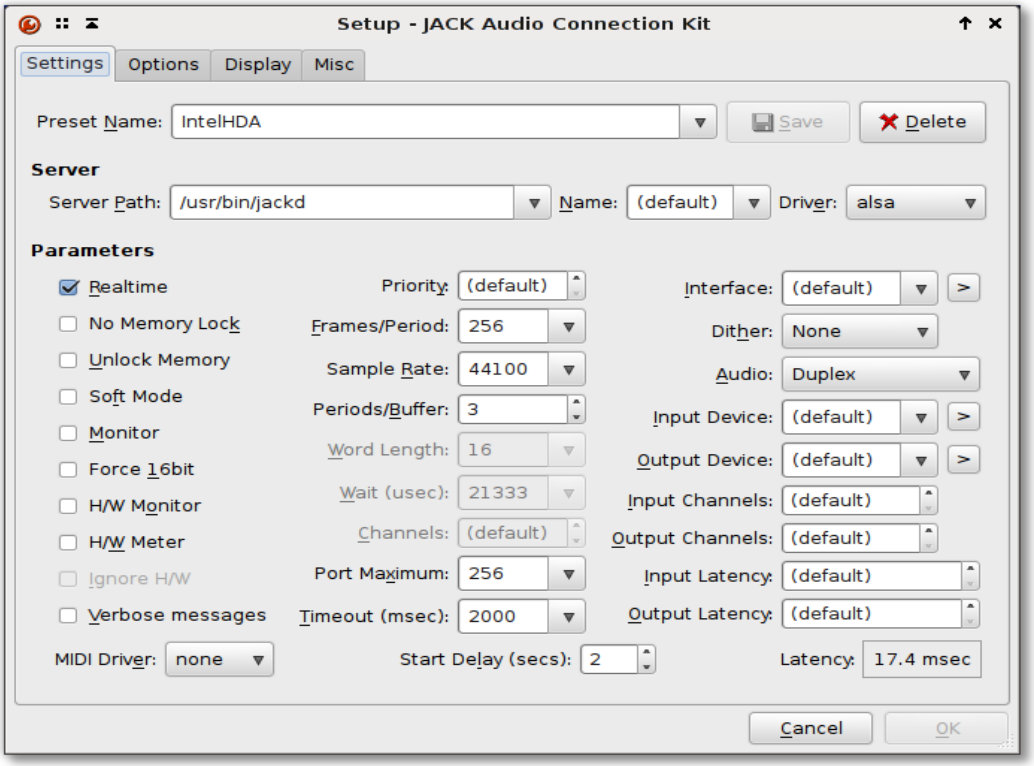
Printer Drivers and Software:

Many printer models will have driver support within the CUPS print server, If you have a Hewlett Packard Printer AV Linux 6.0.1 comes with a pre-installed recent build of the 'HPLIP' Printer Drivers and Utilities. For other makes of printers configuration is done with the printer configuration utility found in 'Preferences' → 'Printing'. Printer drivers come in a 'PPD' (PostScript Printer Description) format which is key to getting your printer to work properly. PPD files can be found for some Printer manufacturers on their websites or in some cases on the driver disk that came with your printer. If you are having difficulty getting your particular printer working then the only advice I can offer is do a Google search on your printer make and model followed by the word 'linux' . There are quite a few specialized blogs or forum posts dealing with specific printer issues. Many times the Ubuntu user forums will have some good information as well.

USING JACK:

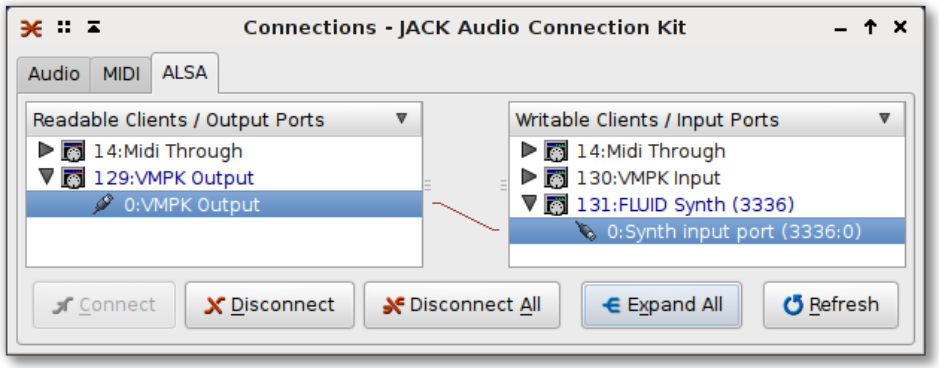
The easiest way to setup the JACK Audio server is to use the JACK Control app (a.k.a. Qjackctl). It can easily be launched from the LXPanel or Wbar Dock. To setup your Audio card click the 'Setup' button.

In the example below the system has a default onboard Intel HDA which has been selected in the 'Interface' dropdown. Generally speaking if your Audio interface shows up in the dropdown list it is supported by ALSA and therefore by JACK as well. To use a firewire interface you will need to select 'firewire' instead of 'alsa' in the 'Driver' dropdown. It is very important to make sure that 'Realtime' is checked off under 'Parameters'. Another number to look at during setup is the 'Frames/Period' figure. If you are experiencing 'Xruns' or audio dropouts then you will need to increase this number, conversely if you want to decrease the 'Latency' figure then decrease the Frames/Period until Xruns appear. If you are recording directly to a Recording Track then low latency numbers are really not terribly necessary, if you are recording through a plugin or other audio application en route to the Recording Track then lower latencies are required. To use JACK with Synthesizer and MIDI Plugins it is recommended to increase the 'Timeout (msec)' value to 2000 miliiseconds or more for better stability.

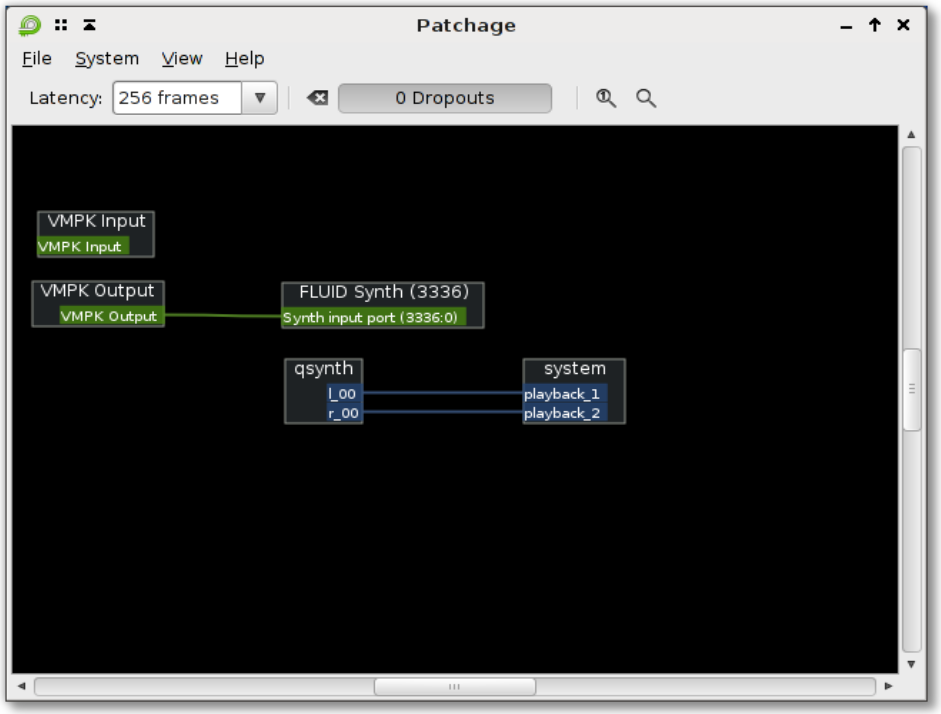


Making Connections:

Most applications once up and running with JACK will manage their connections within the program you are using, however sometimes it is necessary to use the 'Connect' function in JACK Control to manually connect applications or even hardware like MIDI Keyboards. In the example below we are connecting the MIDI Outputs of the 'VMPK' Virtual Keyboard to control the Qsynth Soundfont Synthesizer. The 'Connections' window has three tabs. The 'Audio' tab is where the Audio connections are made from the mic or line inputs of the soundcard to the application you are using and from the application to the actual outputs of the soundcard. The 'MIDI' tab is for making connections with hardware and software that utilizes 'JACK MIDI' and the ALSA tab does the same thing for hardware and applications that use 'ALSA MIDI'.



For those who are more graphically oriented there is also an alternate utility for making connections in AV Linux called 'Patchage' found in the 'Audio Utilities' menu and pictured below.

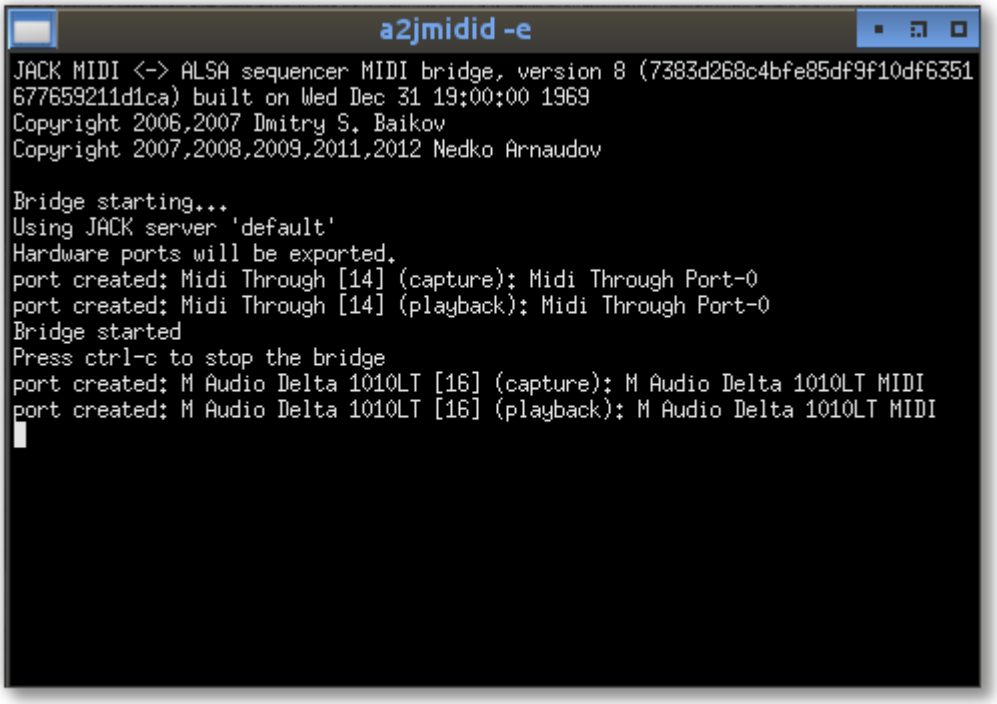


MANAGING MIDI IN AV LINUX

Bridging ALSA and JACK MIDI:

In the previous section we discussed the low-latency JACK Audio server. JACK has both an Audio and MIDI component and the fact that Linux has 2 distinct types of MIDI I/O can often be confusing to new users. A common scenario is plugging in an ALSA supported MIDI Controller Keyboard, if you start an application which supports ALSA MIDI (ie Hydrogen) you will be able to see and use your MIDI keyboard as you would expect. Where things get confusing is if you are using an application that only supports JACK MIDI (ie Ardour3) you will not be able to see your Keyboard in the listed MIDI inputs....what to do ??!

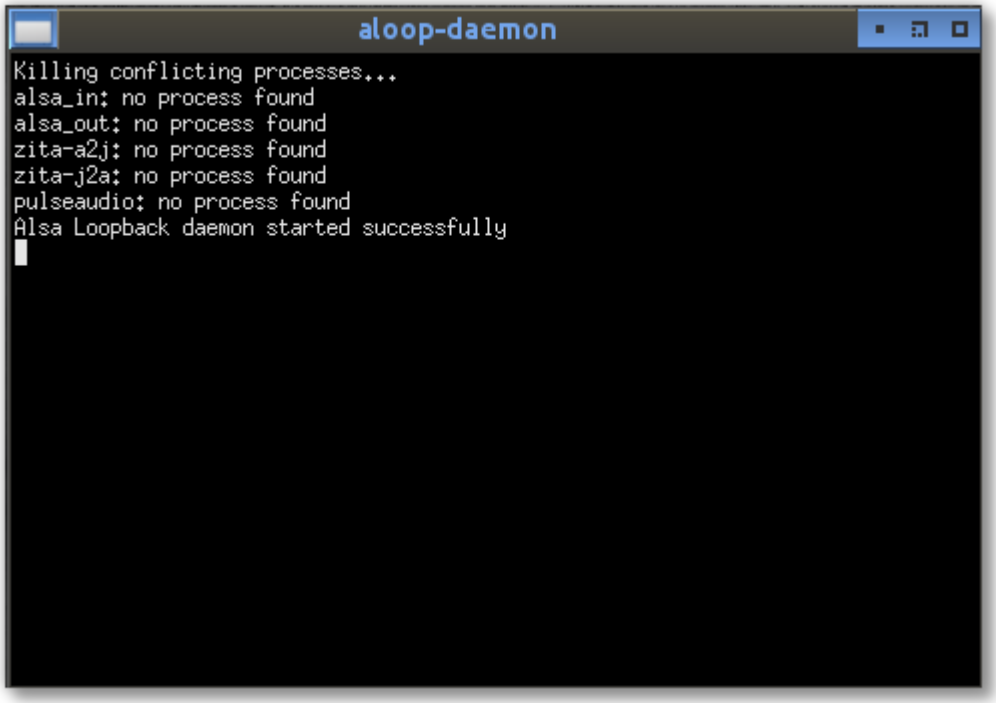
AV Linux includes an Audio Utility called 'A2JMIDID', a daemon which takes ALSA MIDI inputs and outputs and exposes them to the JACK MIDI system and therefore makes them visible in applications that only support JACK MIDI, these MIDI I/O ports will also be visible in 'Patchage' and other JACK Patching Utilities like Qjackctl. To use A2JMIDID you need to have JACK Running and then simply select 'A2JMIDID' from the 'Audio Utilities' Menu, A2JMIDID runs in an Xterm window to tell you what it's doing and that it has bridged successfully. You need to leave the Xterm window open for as long as you want to use A2JMIDID.


a2jmidid -e
JACK MIDI <-> ALSA sequencer MIDI bridge, version 8 (7383d268c4bfe85df9f10df6351677659211d1ca) built on Wed Dec 31 19:00:00 1969
Copyright 2006,2007 Dmitry S. Baikov
Copyright 2007,2008,2009,2011,2012 Nedko Arnaudov
Bridge starting...
Using JACK server 'default'
Hardware ports will be exported.
port created: Midi Through [14] (capture): Midi Through Port-0
port created: Midi Through [14] (playback): Midi Through Port-0
Bridge started
Press ctrl-c to stop the bridge
port created: M Audio Delta 1010LT [16] (capture): M Audio Delta 1010LT MIDI
port created: M Audio Delta 1010LT [16] (playback): M Audio Delta 1010LT MIDI

USING THE ALOOP DAEMON – NEW FOR AV LINUX 6.0 !:

Looping ALSA Applications While JACK is Running:

AV Linux 6.0 has a great new Audio routing feature contributed by falkTX of KXStudio. In a usual ALSA/JACK setup whichever system Audio Device being use by one audio server will not be available to the other. For instance if you are using an onboard soundcard with JACK and fire up any ALSA dependent application it will fail and complain that the Audio device is busy. The 'aloop daemon' uses a combination of the Kernel's 'snd-aloop' module, the daemon's python script and a dynamically loaded custom 'asoundrc' file to create an ALSA Loopback Audio device on the system. To use this feature select and start the JACK server with the Audio device of your choosing as detailed in the previous 'Using JACK' section, when the JACK server has started select 'Aloop Daemon' from the 'Audio Utilities' menu which will launch a terminal to both indicate that the daemon is running and that it launched successfully. Do not close the terminal until you want the daemon to quit running. You can shut down the daemon by either shutting down JACK with Qjackctl or closing the terminal that the daemon is running in. When the daemon is running you will be able to launch any ALSA dependent applications and have the audio output come through your selected running JACK Audio device. Cool Stuff!



***NOTE** – The aloop-daemon may require a 'timeout' setting in the Qjackctl setup dialog of 2000 milliseconds for best performance.

SUPPORTED PRO HARDWARE IN AV LINUX

The following list was provided by AV Linux users and compiled and sorted by AV Linux forum member Tom (a.k.a Grooveschmied). Thanks to everyone who participated!

For a complete and up to date list please check out the AV Linux forum topic here:
http://www.remastersys.com/forums/index.php?topic=2180.0

AUDIO DEVICES:

BRAND NAME: Akai RPM3 (speaker + audio interface)
INTERFACE: USB1
I/O CHANNELS: 2/2 (via usb output, records stereo)
SUPPORT: Fully working
SPECIAL FIRMWARE REQ'D: Not known

BRAND NAME: Alesis iO4
INTERFACE: USB
I/O CHANNELS: 4/4 24bit/48kHz
SUPPORT: Fully Working
SPECIAL FIRMWARE REQ'D: Not known

BRAND NAME: ART Dual-Tube Computer interface
INTERFACE: USB2
I/O CHANNELS: 2/2
SUPPORT: Fully working
SPECIAL FIRMWARE REQ'D: Not known

BRAND NAME: Creative SoundBlaster PCI128 / Live!
INTERFACE: PCI
I/O CHANNELS: 2/2
SUPPORT: Fully working
SPECIAL FIRMWARE REQ'D: No

BRAND NAME: Echo AudioFire 4
INTERFACE: FireWire
I/O CHANNELS: 2 XLR mics/with phantom power (only that has been utilized)
SUPPORT: working (except phantom power config & everything about midi ports)
SPECIAL FIRMWARE REQ'D: Works with updated firmware or without

BRAND NAME: Echo AudioFire12
INTERFACE: FireWire
I/O CHANNELS: 12/12
SUPPORT: Fully working, have chained up to 3 units, serious experimentation with 2 chained
SPECIAL FIRMWARE REQ'D: Not known

BRAND NAME: Echo Indigo I/O
INTERFACE: CardBus
I/O CHANNELS: 2/8/8 input/monitor/playback.
SUPPORT: Fully working
SPECIAL FIRMWARE REQ'D: Not known

BRAND NAME: Echo Mia Midi
INTERFACE: PCI, PCI-X (3.3/5 volt)
I/O CHANNELS: 2/2, MIDI in/out, 24 bit coaxial S/PDIF digital I/O; 4 channel full duplex
SUPPORT: Fully working
SPECIAL FIRMWARE REQ'D: No

BRAND NAME: Edirol FA-101
INTERFACE: FireWire
I/O CHANNELS: 10/10 (8+2 SPDIF) for 44.1/48/88.2/96 kHz, and 6/6 for 192kHz
SUPPORT: Fully working / Fully supported by ffado
SPECIAL FIRMWARE REQ'D: Not known

BRAND NAME: Edirol UA25
INTERFACE: USB
I/O CHANNELS: 2/2
SUPPORT: Fully working
SPECIAL FIRMWARE REQ'D: No

BRAND NAME: E-MU 1616 (with breakoutbox)
INTERFACE: PCI
I/O CHANNELS: 4 in /6 out (ADAT, S-PDIF) /1 turntable in /2 MIDI I/O
SUPPORT: working but requires detailed alsamixer setup
SPECIAL FIRMWARE REQ'D: Not known

BRAND NAME: Focusrite VRM Box
INTERFACE: USB2
I/O CHANNELS: 2/2/2 in/monitor/out RCA S/PDIF . Could not get software to install in wine. I have not yet recorded with it.
SUPPORT: Fully working ?
SPECIAL FIRMWARE REQ'D: Not known

BRAND NAME: Focusrite Saffire /with DSP, FFADO Mixer, Limited DSP for now
INTERFACE: FireWire 400
I/O CHANNELS: 4/8/2 in/out/S-PDIF, Midi i/o
SUPPORT: Fully working: Rock solid in jackd @ 1.5ms and Harrison MixBus Ardour
SPECIAL FIRMWARE REQ'D: Not known
Note:I had to install none AVLinux packaged for FFADO , Jackfirewire, Jackd1 and LibJackd

BRAND NAME: Focusrite Saffire Pro24 Audio Interface
INTERFACE: FireWire
I/O CHANNELS: 4 /6, headphone jack, midi, ADAT, S/PDIF
SUPPORT: Fully working (but I have not used ADAT, S/PDIF).
COMMENT: Works in recent AVLinux versions, but FFADO svn > 2062 added (AVL5.0.3 has svn 1995).

BRAND NAME: Focusrite Saffire Pro 26 Audio Interface
INTERFACE: FireWire
I/O CHANNELS: 8 XLR In, 2/8 1/4″ Jack I/O, Midi I/O
SUPPORT: Fully working
SPECIAL FIRMWARE REQ'D: Not known

BRAND NAME: Focusrite Saffire Pro 40 Audio Interface
INTERFACE: FireWire
I/O CHANNELS: 8/10 (ADAT, S-DPIF), 2 headphone, Midi in/out, 2 Firewire
SUPPORT: Fully working (but has issues with older ffado versions)
SPECIAL FIRMWARE REQ'D: Not known

BRAND NAME: Focusrite Scarlet 2i2
INTERFACE: USB2
I/O CHANNELS: 2/2
SUPPORT: Fully working
SPECIAL FIRMWARE REQ'D: Not known

BRAND NAME: Hoontech Soundtrack Audio DSP24
INTERFACE: PCI
I/O CHANNELS: 10/10
SUPPORT: working (cascading may not work)
SPECIAL FIRMWARE REQ'D: Not known

BRAND NAME: Lexicon ALPHA Desktop Interface
INTERFACE: USB
I/O CHANNELS: 2/2
SUPPORT: Fully working
SPECIAL FIRMWARE REQ'D: Not known

BRAND NAME: Lexicon Omega
INTERFACE: USB
I/O CHANNELS: 4 in / 2 out, Midi I/O
SUPPORT: Fully working
SPECIAL FIRMWARE REQ'D: Not known

BRAND NAME: M-Audio 1010LT
INTERFACE: PCI
I/O CHANNELS: 10/10 (8+2 SPDIF)
SUPPORT: Fully working
SPECIAL FIRMWARE REQ'D: Not known

BRAND NAME: M-Audio Delta 66
INTERFACE: PCI
I/O CHANNELS: 6/6 (4+2 SPDIF)
SUPPORT: Fully working
SPECIAL FIRMWARE REQ'D: No

BRAND NAME: M-Audio Delta Audiophile 2496
INTERFACE: PCI
I/O CHANNELS: 2/2 cinch with 24Bit/96kHz, SPDIF I/O, MIDI I/O
SUPPORT: Fully working
SPECIAL FIRMWARE REQ'D: Not known

BRAND NAME: M-Audio Fast Track Pro
INTERFACE: USB
I/O CHANNELS: 4 x 4 24-Bit/44,1kHz /96kHz
SUPPORT: Fully working
SPECIAL FIRMWARE REQ'D: Not known

BRAND NAME: Native Instruments Komplete Audio 1
INTERFACE: USB2
I/O CHANNELS: 4/4, mic, headphone jack, Midi I/O
SUPPORT: Fully working, but needs to be configured via .asoundrc
SPECIAL FIRMWARE REQ'D: No

BRAND NAME: Native Instruments Komplete Audio 6
INTERFACE: USB2
I/O CHANNELS: 6/6 (4+2 SPDIF)
SUPPORT: Fully working
SPECIAL FIRMWARE REQ'D: No

BRAND NAME: nVidia Realtek ALC269 / ALC880 / ALC889 (HDA)
INTERFACE: PCI
I/O CHANNELS: 2/2
SUPPORT: Fully working
SPECIAL FIRMWARE REQ'D: No

BRAND NAME: Phonic Helix 24
INTERFACE: FireWire
I/O CHANNELS: 16/2
SUPPORT: Fully working
SPECIAL FIRMWARE REQ'D: Not known

BRAND NAME: Phonic Helix 24 Mark II
INTERFACE: FireWire
I/O CHANNELS: 16/2
SUPPORT: Fully working
SPECIAL FIRMWARE REQ'D: Not known

BRAND NAME: PreSonus Firepod (FP10)
INTERFACE: FireWire
I/O CHANNELS: 10/10 (8+2 SPIDF), MIDI. Up to three units can be daisy-chained.
SUPPORT: Fully working
SPECIAL FIRMWARE REQ'D: None (firmware v2.46 is required for daisy-chaining)

BRAND NAME: Presonus Firepod (FP10)
INTERFACE: FireWire
I/O CHANNELS: 10/10
SUPPORT: Fully working, have diasy chained 2
SPECIAL FIRMWARE REQ'D: Not known

BRAND NAME: Presonus FireStudio
INTERFACE: FireWire
I/O CHANNELS: 8/2
SUPPORT: Fully working
SPECIAL FIRMWARE REQ'D: Not known

BRAND NAME: Presonus StudioLive 1642
INTERFACE: FireWire
I/O CHANNELS: 16/2
SUPPORT: Fully working
SPECIAL FIRMWARE REQ'D: Not known

BRAND NAME: RME Hammerfall HDSP 9652 (with audio extension board)
INTERFACE: PCI Busmaster
I/O CHANNELS: 2 + 24 Channels SPDIF/ADAT Interface; 24 Bit/96 kHz, 2xMIDI I/O
SUPPORT: Fully working
SPECIAL FIRMWARE REQ'D: hdsploader, HDSPMixer is mandatory

BRAND NAME: RME Fireface 400
INTERFACE: standalone, midi controlled
I/O CHANNELS: 8/8, 2xMIDI I/O
SUPPORT: Fully working
SPECIAL FIRMWARE REQ'D: Not known

BRAND NAME: RME Multiface I
INTERFACE: PCI, PCI Express Card, CardBus Card, Express Card
I/O CHANNELS: 8/8 ADAT+2SPDIF
SUPPORT: Fully working
SPECIAL FIRMWARE REQ'D: Not known

BRAND NAME: RME Multiface II
INTERFACE: PCI, PCI Express Card, CardBus Card, Express Card
I/O CHANNELS: 8/8 Analog, 1 ADAT, 1 SPDIF, Midi I/O, Headphone jack
SUPPORT: Fully working
SPECIAL FIRMWARE REQ'D: Not known

BRAND NAME: Roland/Cakewalk UA-1G
INTERFACE: USB2
I/O CHANNELS: 2/2 (haven't tried the mic or guitar input – only the stereo inputs)
SUPPORT: Fully working
SPECIAL FIRMWARE REQ'D: Not known

BRAND NAME: Roland/Cakewalk – UA-4FX
INTERFACE: USB
I/O CHANNELS: 2 I/O Full duplex (Except 96 kHz)
SUPPORT: Fully working
SPECIAL FIRMWARE REQ'D: Not known

BRAND NAME: Roland/Cakewalk UA-25EX
INTERFACE: USB1
I/O CHANNELS: 2/2 & midi i/o
SUPPORT: Fully working
SPECIAL FIRMWARE REQ'D: None

BRAND NAME: Tascam Fireone
INTERFACE: FireWire 400
I/O CHANNELS: 2/2 audio, one midi in/out
SUPPORT: output works very well, input recording has heavy distortion, appears ffado stack has issues with this unit, DAW control works in Ardour by selecting Mackie control but it glitches
SPECIAL FIRMWARE REQ'D: Not known

BRAND NAME: Tascam US-122
INTERFACE: USB1
I/O CHANNELS: 2/2/2 input/monitor/playback, Midi I/O
SUPPORT: Fully working
SPECIAL FIRMWARE REQ'D: Not known

BRAND NAME: TC Electronic Konnekt 6
INTERFACE: Firewire
I/O CHANNELS: 2/2
SUPPORT: Fully working except phantom power on/off switch
SPECIAL FIRMWARE REQ'D: Not known

BRAND NAME: Yamaha Motif Rack ES
INTERFACE: USB (TO HOST)
I/O CHANNELS: LINE OUT – L/MONO (standard phone jack) – ASSIGNABLE OUTPUT 1-4
SUPPORT: Fully working
SPECIAL FIRMWARE REQ'D: No

MIDI DEVICES:

BRAND NAME: Akai LPD8 Laptop Pad Controller
SUPPORT: Fully working
COMMENT: config program works with wine

BRAND NAME: Alesis Q25
INTERFACE: USB/MIDI
I/O CHANNELS: Shows as Q25 in Jack MIDI and Alsa MIDI
SUPPORT: Fully working
SPECIAL FIRMWARE REQ'D: Not known

BRAND NAME: Behringer BCF2000
INTERFACE: USB, MIDI
I/O CHANNELS: 16
SUPPORT: Fully working
SPECIAL FIRMWARE REQ'D: No

BRAND NAME: Edirol PCR 800 Midi Keyboard
INTERFACE: Midi/usb
I/O CHANNELS: Midi in out – visible as pcr (1+2) in alsa tab
SUPPORT: works but not tested the controller's assignements -
SPECIAL FIRMWARE REQ'D: No

BRAND NAME: Korg NanoPad
INTERFACE: USB (mini)
SUPPORT: Fully working
SPECIAL FIRMWARE REQ'D: Not know

BRAND NAME: M-Audio Axiom 49
INTERFACE: USB-Midi, Midi
SUPPORT: Fully working
SPECIAL FIRMWARE REQ'D: none

BRAND NAME: M-Audio Keystation 32
INTERFACE: USB1
I/O CHANNELS: ported through Jack
SUPPORT: Fully working
SPECIAL FIRMWARE REQ'D: none

BRAND NAME: M-Audio KeyStudio 25
INTERFACE: USB, Midi out
I/O CHANNELS: ported through Jack
SUPPORT: Fully working
SPECIAL FIRMWARE REQ'D: none

BRAND NAME: M-Audio MIDISPORT 2×2
INTERFACE: USB-Midi
I/O Channels: 32/32 Midi
SUPPORT: Fully working (if not, you might have to delete /etc/udev/rules.d/42-midisport-firmware.rules since there is a correct udev rule in /lib/udev/rules.d/42-midisport-firmware.rules)
SPECIAL FIRMWARE REQ'D: none

BRAND NAME: M-Audio Oxygen 61
INTERFACE: USB
SUPPORT: Fully working

BRAND NAME: M-Audio USB-UNO Multiplatform USB Midi Interface.
INTERFACE: MIDI-USB cable
SUPPORT: Fully working

BRAND NAME: ROLAND PC-180 Midi Keyboard
INTERFACE: Midi
I/O CHANNELS: Midi out
SUPPORT: Fully working
SPECIAL FIRMWARE REQ'D: No

BRAND NAME: ROLAND ED UM-2 Midi interface
INTERFACE: Usb1
I/O CHANNELS: 2Midi ins/2Midi outs
SUPPORT: Fully working
SPECIAL FIRMWARE REQ'D: Not known

BRAND NAME: Turtle Beach USB MIDI cable
INTERFACE: USB
I/O CHANNELS: 16 MIDI
SUPPORT: Fully working
SPECIAL FIRMWARE REQ'D: None

MIXERS:

BRAND NAME: Allen&Heath Zed 10fz Mixer
INTERFACE: USB
I/O CHANNELS: 2/2
SUPPORT: Working not fully tested Tested outputs only sound was great.
SPECIAL FIRMWARE REQ'D: Not known

BRAND NAME: Allen&Heath Zed 14
INTERFACE: USB 1
I/O CHANNELS: 2/2 (Selectable between Main Mix pre/post fade, Aux1-2, Aux3-4)
SUPPORT: Fully working
SPECIAL FIRMWARE REQ'D: No

BRAND NAME: Behringer Xenyx 1622 Mixer
INTERFACE: USB
I/O CHANNELS: 2/2
SUPPORT: Working not fully tested Tested outputs only but sound was great. I have not recorded with this Mixer.
SPECIAL FIRMWARE REQ'D: Not known

BRAND NAME: Mackie Onyx 1640 (w/ Firewire Option Card)
INTERFACE: FireWire
I/O CHANNELS: 16/2
SUPPORT: Fully working
SPECIAL FIRMWARE REQ'D: Not known

VIDEO CAPTURE:

BRAND NAME: Canopus ADVC-100
INTERFACE: FireWire
SUPPORT: Fully working
SPECIAL FIRMWARE REQ'D: Not known

BRAND NAME: Hauppauge WinTV PVR-150
INTERFACE: PCI
SUPPORT: Fully working
SPECIAL FIRMWARE REQ'D: Not known

BRAND NAME: Pinnacle usb HDTV model 801 se
INTERFACE: USB
SUPPORT: Fully working
SPECIAL FIRMWARE REQ'D: Not known

CAMERAS/WEBCAMS:

BRAND NAME: Acer Crystal Eye Web cam
INTERFACE: Acer Laptop Builtin
SUPPORT: Fully working
SPECIAL FIRMWARE REQ'D: Not known

BRAND NAME: Logitech QuickCam
INTERFACE: USB
SUPPORT: Fully working
SPECIAL FIRMWARE REQ'D: No

BRAND NAME: RocketFish 2MP AF Web Cam
INTERFACE: USB
SUPPORT: Fully working
SPECIAL FIRMWARE REQ'D: Not known

BRAND NAME: Samsung SC-D382 miniDV Camcorder
INTERFACE: FireWire
SUPPORT: Fully working
SPECIAL FIRMWARE REQ'D: No

BRAND NAME: Sony HandyCam DCR-TRV460
INTERFACE: FireWire
SUPPORT: Fully working
SPECIAL FIRMWARE REQ'D: Not known

OTHER DEVICES:

BRAND NAME: Behringer B-CONTROL DEEJAY BCD2000
INTERFACE: USB
I/O CHANNELS: 4in 4 out (master: 2x rca, monitor:1x stereo phones)
SUPPORT: output Working, input not tested
SPECIAL FIRMWARE REQ'D: No

BRAND NAME: Gem Sound PL-USB Phono-2-USB Interface
INTERFACE: USB
I/O CHANNELS: 2/2/2/ input/monitor/output
SUPPORT: Fully working
SPECIAL FIRMWARE REQ'D: Not known

BRAND NAME: Mixvibes U-Mix44
INTERFACE: USB
I/O CHANNELS: 4/4 cinch, mic in, headphone jack
SUPPORT: Fully Working
SPECIAL FIRMWARE REQ'D: No

BRAND NAME: Zoom H4 Portable Recorder
INTERFACE: USB1.1
I/O CHANNELS: 2/2
SUPPORT: Fully working
SPECIAL FIRMWARE REQ'D: Not known

M-AUDIO 1010LT PCM MULTI WITH AV LINUX:

****NOTE** - PCM Multi setup cannot be used with the Aloop-Daemon.**

Lots of Audio I/O for Little Money:

AV Linux supports a number of Pro-Audio interfaces with PCI, FireWire and USB I/O, of special note M-Audio's 1010LT is a very affordable and well supported PCI Card interface supplying 10 channels of I/O. By using a customized PCM_Multi '.asoundrc' file multiple 1010LT's can be run on AV Linux providing a lot of channels without spending a lot of money. AV Linux comes by default with the necessary software components to set up two 1010LT's easily providing funtionality either with or without an additional onboard Sound Card on the system. The default AV Linux PCM_Multi setup is for 16 Channels of I/O.

How to Use the Provided '.asoundrc' Config Files:

To start you will need to decide whether you are using the 1010LT's by themselves or in addition to an onboard Sound Chip and then make sure both 1010LT cards are installed in the system PCI slots and the the SPDIF **Out** of the first card is connected to the SPDIF **In** on the second card. Next, look in your User's home folder for the 'Extra Goodies/'PCM Multi' folder and select which 'asoundrc' file is needed for your particular setup.

To check out how you cards are set up on the system use this command in a regular terminal:

cat /proc/asound/cards

Here is a screenshot of a system with an onboard Intel HDA and two 1010LT's, note that the 0,1,2 numbers correlate to the 'hw:0', 'hw:1', 'hw:2' numbers used by JACK.

tester@av5desk: ~
File Edit Tabs Help
tester@av5desk:~$ cat /proc/asound/cards
0 [Intel]: HDA-Intel - HDA Intel
HDA Intel at 0xe3120000 irq 43
1 [M1010LT]: ICE1712 - M Audio Delta 1010LT
M Audio Delta 1010LT at 0xd0a0, irq 20
2 [M1010LT_1]: ICE1712 - M Audio Delta 1010LT
M Audio Delta 1010LT at 0xd080, irq 21
tester@av5desk:~$

Use this file by copying the 'asoundrc.txt' (for 2 ice1712 cards with NO onboard sound card) OR the 'asoundrc+onboard.txt' (for 2 ice1712 cards AND an onboard sound card) into your users home folder and renaming whichever file you use to '.asoundrc' (without the quotes). It is normal for the file to disappear from view when you rename it because the dot (.) makes it viewable only with 'show hidden' enabled in the PCManFM file manager. It is important to note if you are using 2 cards plus an onboard you should have the onboard chip as the default or first sound card followed by the ice1712 cards.

Setting up Mudita24Control (Card2) Launchers:

By default the Mudita24Control (Card 2) launcher found in the 'Soundcard Utilities' Menu is set for a system with two 1010LT's and no onboard Sound Chip. In order to use it properly with an onboard Sound Device the launcher needs to have it's 'Exec=' line modified. Open the launcher for modification by copying and pasting this command into a Root Terminal:

gedit /usr/share/applications/envy24_controlcard2

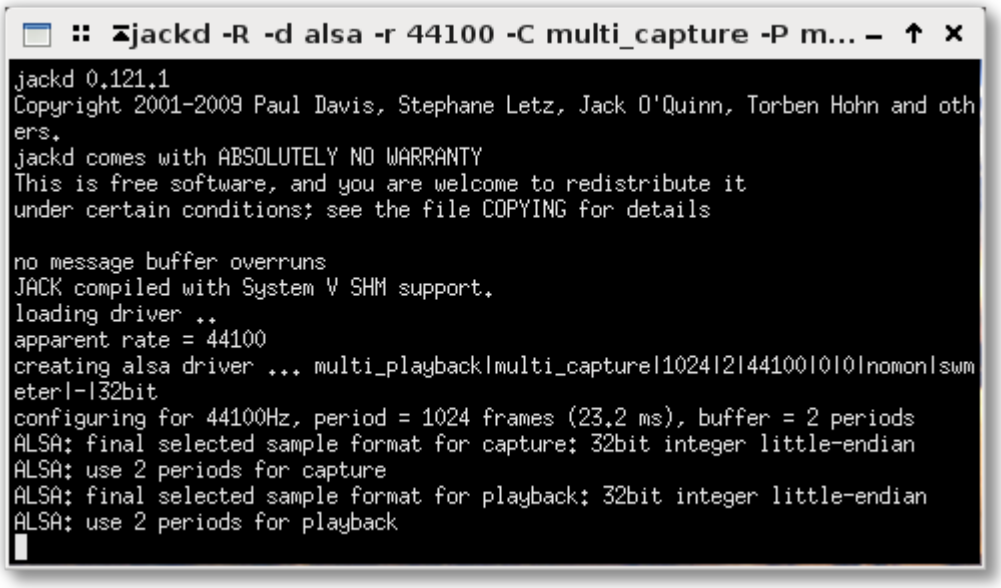
Then change this:
Exec=/opt/bin/envy24control -D hw:1

To this:
Exec=/opt/bin/envy24control -D hw:2

This will allow the Mudita24Control (Card 2) launcher found in the 'Soundcard Utilities' Menu to correctly work with the second card.

Launching JACK With 'PCM Multi Start':

The 1010LTs are identified to JACK and ALSA as 'pcm_multi capture' and 'pcm_multi playback' by the '.asoundrc' file. The regular method of launching JACK with the 'Qjackctl' application requires some extra configuration to work with PCM Multi so AV Linux provides a special 'PCM_Multi Start' launcher found in the 'Soundcard Utilities' Menu to start JACK and have the 16 Channels of I/O available to the Audio applications of your choice. This launcher opens a small xterm window to show you that JACK is running properly, please note that closing the xterm window also kills JACK.


jackd -R -d alsa -r 44100 -C multi_capture -P m...
jackd 0.121.1
Copyright 2001-2009 Paul Davis, Stephane Letz, Jack O'Quinn, Torben Hohn and oth
ers.
jackd comes with ABSOLUTELY NO WARRANTY
This is free software, and you are welcome to redistribute it
under certain conditions; see the file COPYING for details
no message buffer overruns
JACK compiled with System V SHM support.
loading driver ..
apparent rate = 44100
creating alsa driver ... multi_playback|multi_capture|1024|2|44100|0|0|nomon|swm
eter|-|32bit
configuring for 44100Hz, period = 1024 frames (23.2 ms), buffer = 2 periods
ALSA: final selected sample format for capture: 32bit integer little-endian
ALSA: use 2 periods for capture
ALSA: final selected sample format for playback: 32bit integer little-endian
ALSA: use 2 periods for playback

DEBIAN REFERENCE:

Many people who are new to Linux are reluctant to use the terminal and sometimes consider it to be either a primitive means of using the computer or too complicated. After some time to adjust to using it most Linux users come to appreciate the facility and speed afforded by using the CLI. The following section can be utilized by experienced Linux users and demonstrate some fundamentals to new Linux users. The apt and dpkg articles are modified from an excellent article by Matthew Danish.

WARNING! - Please remember it is not advised to use either 'apt-get upgrade' or 'apt-get dist-upgrade with AV Linux. If you don't understand what a Terminal Command is actually going to do to your system it is advised not to use it.

Common APT usage :

apt-get install <package> Downloads <package> and all of its dependencies, and installs or upgrades them. This will also take a package off of *hold* if it was put on. See below for more info on *hold*.

apt-get remove [--purge] <package> Removes <package> and any packages that depend on it. --purge specifies that packages should be *purged*, see dpkg -P for more information.

apt-get update Updates packages listings from Debian mirrors, should be run at least once a day if you install anything that day, and every time after /etc/apt/sources.list is changed.

apt-get upgrade [-u] Upgrades all packages installed to newest versions available. Will not install new or remove old packages. If a package changes dependencies and requires installation of a new package, it will not be upgraded, it will be put on *hold* instead. apt-get upgrade will not upgrade packages put on *hold* (that is the meaning of *hold*). See below for how to manually put packages on *hold*. I suggest the `-u' option as well, because then you can see what packages are going to be upgraded.

apt-get dist-upgrade [-u] Similar to apt-get upgrade, except that *dist-upgrade* will install or remove packages to satisfy dependencies.

apt-cache search <pattern> Searches packages and descriptions for <pattern>.

apt-cache show <package> Shows the full description of <package>.

apt-cache showpkg <package> Shows a lot more detail about <package>, and its relationships to other packages.

Common Dpkg Usage :

dpkg -i <package.deb> Installs a Debian package file; one that you downloaded manually, for example.

dpkg -c <package.deb> Lists the contents of <package.deb>, a .deb file.

dpkg -I <package.deb> Extracts package information from <package.deb>, a .deb file.
dpkg -r <package> Removes an installed package named <package>

dpkg -P <package> Purges an installed package named <package>. The difference between *remove* and *purge* is that while *remove* only deletes data and executables, *purge* also deletes all configuration files in addition.

dpkg -L <package> Gives a listing of all the files installed by <package>. See also dpkg -c for checking the contents of a .deb file.

dpkg -s <package> Shows information on the installed package <package>. See also apt-cache show for viewing package information in the Debian archive and dpkg -I for viewing package information extracted from a .deb file.

dpkg-reconfigure <package> Reconfigures an installed package, if it uses *debconf* (*debconf* provides that consistent configuration interface for package installation). You can reconfigure *debconf* itself if you want to change the front-end or priority of questions asked. For example, to reconfigure *debconf* with the dialog front-end, you simply run:

dpkg-reconfigure --frontend=dialog debconf

echo ``<package> hold" | dpkg --set-selections Put <package> on *hold* (command line method)

dpkg --get-selections ``<package>" Get the current status of <package> (command line method)

dpkg -S <file> Searches for <file> in package database, telling you which packages have that file in them.

Building Debian Packages from Source:

apt-get source [-b] <package> Download the source Debian package for <package> and extract it. You must have deb-src lines in your /etc/apt/sources.list for this to work. If you supply the `-b' option and you are currently root, then the package will be automatically built if possible.

apt-get build-dep <package> Download and install the packages necessary to build the source Debian package <package>. This feature is only present in apt version 0.5 and up. Currently this means that woody and above contain this functionality. If you have an older version of apt then the easiest way to find out the build dependencies is to look in the debian/control file in the source package directory. A common usage of this command is in conjunction with apt-get source -b. For example (as root):

apt-get build-dep <package>
apt-get source -b <package>

Will download the source package, all of its build dependencies, and attempt to compile the source package.

dpkg-source -x <package.dsc> If you have downloaded the source package for a program manually, which includes several files such as a .orig.tar.gz (or .tar.gz if it is Debian native), a .dsc, and a .diff.gz (if it is not Debian native), then you can unpack the source package using this command on the .dsc file.

dpkg-buildpackage Builds a Debian package from a Debian source tree. You must be in the main directory of the source tree for this to work. Sample usage:

dpkg-buildpackage -rfakeroot -uc -b

Where `-rfakeroot' instructs it to use the fakeroot program to simulate root privileges (for ownership purposes), `-uc' stands for ``Don't cryptographically sign the changelog'', and `-b' stands for ``Build the binary package only''

debuild A handy wrapper script around dpkg-buildpackage that will automatically take care of using fakeroot or not, as well as running lintian and gpg for you.

Fixing dependencies :

dpkg --configure --pending If dpkg quits with an error while apt-get install, upgrade, or dist-upgrading try running this to configure the packages that were already unpacked. Then try apt-get install, upgrade, or dist-upgrade -f, and then try apt-get install, upgrade, or dist-upgrade again. Repeat as needed. This usually resolves most dependency problems (also, if it mentions a specific package for some reason, you might want to try installing or removing that package)

apt-get install -f
apt-get upgrade -f
apt-get dist-upgrade -f

Attempt to fix dependencies while doing one of the above. Note that apt-get install -f does not require a <package> argument.

HANDY TERMINAL COMMANDS:

SYMLINK TO A FILE OR FOLDER ELSEWHERE ON SYSTEM (AS ROOT) :
```
ln -s /path/file/exists /path/link/placed
```

REBUILD FONT CACHE (AS ROOT) :
```
fc-cache -f -v
```

FONT ANTIALIASING AND HINTING SETUP:
```
dpkg-reconfigure fontconfig-config
```

DVD RIPPING WITH MPLAYER :
*Creates a file called "dump.vob" in your home folder assuming movie is title 1.
```
mplayer dvd://1 -dumpstream -dumpfile dump.vob
```

VIRTUALBOX MODULE SETUP (AS ROOT) :
*Make sure linux-headers are installed and linked
```
/etc/init.d/vboxdrv setup
```

PRINT A 'selections.txt' FILE TO DESIGNATE HELD PACKAGES (AS ROOT)
```
dpkg --get-selections \* > selections.txt
```
*Then edit selections.txt as Root

SAVE THE 'selections.txt' FILE TO DPKG (AS ROOT)
```
dpkg --set-selections < selections.txt
```

BUILD DEBIAN PACKAGE WITH GIT-BUILDPACKAGE:
```
git-buildpackage --git-upstream-branch=origin/upstream
```

BUILD DEBIAN PACKAGE WITH DPKG:
```
dpkg-buildpackage -rfakeroot -uc -b
```

LINKING KERNEL HEADERS FOR MODULE BUILDING:
```
ln -s /usr/src/linux-headers-$(uname -r) /lib/modules/$(uname -r)/build
```

SET A DIFFFERENT C COMPILER THAN DEFAULT
*Replace X.X with desired gcc version
```
export CC=/usr/bin/gcc-X.X
```

APPLY A PATCH TO SOURCE CODE OR KERNEL
```
patch -p1 < PATCHFILENAME
```

GRAB SOURCE CODE FROM LAUNCHPAD WITH BZR
*Openshot Video Editor as an example
```
bzr branch lp:openshot
```

CHECK SOUND DEVICES INSTALLED ON SYSTEM
```
cat /proc/asound/cards
```

CHECK AUDIO PLAYBACK DEVICES ON SYSTEM
```
aplay -l
```

THANKS FOR SUPPORTING AV LINUX !:

A sincere and heartfelt thanks to the few but amazingly generous people who have supported AV Linux over the years, the project truly could not have continued as long as it has without your thoughtful assistance. It is an unfortunate statistic that the ratio of downloaders to donators results in less than 1 in 10000 people supporting AV Linux but the failure of the donation model to effectively work still has not stopped some unique and wonderful people from showing their support some of whom made repeat and regular donations. AV Linux 6.0.1 is dedicated to all of you who chose to donate to the project.

My humble thanks and appreciation to you! -GLEN